

## Job Mobilities and Family Lives in Europe - Second Wave: Panel Data Set & Oversampling

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## BiB Daten- und Methodenberichte 3/2016

# Job Mobilities and Family Lives in Europe – Second Wave Panel Data Set & Oversampling

Heiko Rüger; Simon Pfaff; Thomas Skora; Norbert F. Schneider



The series BiB Daten- und Methodenberichte contains data set descriptions and technical reports on population surveys carried out by the Federal Institute for Population Research (BiB). The series is primarily aimed at external researchers interested in the data of the BiB as well as in secondary analyses of these data. The reports include detailed descriptions of data sets and document methodological aspects of data collection. The data and technical reports are written in English or German and are published only electronically at irregular intervals.

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## Job Mobilities and Family Lives in Europe – Second Wave Panel Data Set & Oversampling

### Abstract

This data documentation describes the second wave of the study *Job Mobilities and Family Lives in Europe – Modern Mobile Living and its Relation to Quality of Life*. A first wave was conducted in 2007 in six European countries: Germany, France, Spain, Switzerland, Poland and Belgium. Overall, 7,220 randomly selected individuals were interviewed. The study focused on three main aspects: first, on the prevalence and variety of job-related spatial mobility in Europe, second, on the causes and circumstances of people's mobility decisions, and third, on the consequences of job-related spatial mobility for subjective well-being, family life, occupational career and social integration.

Between 2010 and 2012, a second wave of the survey was carried out. It consists of a follow-up survey that was completed in four countries (Germany, Spain, Switzerland and France) and of additional surveys oversampling highly mobile individuals in Germany and France. In the *follow-up survey*, 1,735 respondents from the initial survey could be interviewed again (overall response rate: 34.5%). The resulting panel structure provides a deeper insight into the research interests by providing an opportunity for longitudinal analysis. Moreover, this opportunity is enhanced by a collection of extensive retrospective data about spatial mobility, employment, partnership and family. The survey also includes new content with topics such as social integration, volunteerism and social mobility. In the *additional surveys*, 499 randomly selected, job-related spatially mobile individuals were interviewed in Germany and France. It aimed to increase the number of people who were spatially mobile for job-related reasons in order to provide a large enough subsample to analyse the situation of these mobile people in a differentiated way.

This document features a description of the forms of mobility investigated in the follow-up and the additional surveys, the contents of the questionnaire, the sampling procedure, the fieldwork, the sample dropouts and the weighting of the data.

The data set is available as a scientific use file at GESIS Leibniz Institute for the Social Sciences (study number: ZA 5066, doi:10.4232/1.12644).

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## 1 Introduction<sup>1</sup>

This data documentation describes the implementation as well as the structure of the second wave of the study Job Mobilities and Family Lives in Europe – Modern Mobile Living and its Relation to Quality of Life. The project aimed to describe job-related circular mobility patterns as well as job-related relocations and to explore their causes and consequences. The survey was put into practice by a network of researchers in several European countries. The project was coordinated by the German Federal Institute for Population Research in Wiesbaden.

A first wave of the survey was conducted in 2007 in Belgium, France, Spain, Switzerland, Poland and Germany. Overall, 7,220 randomly selected persons aged between 25 and 54 were interviewed by telephone, except for Poland where face-to-face interviews were used. The first wave focused on describing the current prevalence and variety of job-related spatial mobility patterns in selected European countries based on representative data. A further objective was to gain insights into the causes and circumstances of people's mobility decisions as well as the consequences of job-related spatial mobility for their subjective well-being, family life, occupational career and social integration. The first wave was funded by the Sixth Framework Programme for Research and Technological Development of the European Commission.

The data set of the first wave in 2007 is available as a scientific use file at GESIS Leibniz Institute for the Social Sciences (<https://dbk.gesis.org/dbksearch>; study number: ZA 5065, doi:10.4232/1.11061). Detailed information on this European comparative study can be found on the project website ([www.jobmob-and-famlives.eu](http://www.jobmob-and-famlives.eu)). Also, two edited volumes have been published, presenting comprehensive results based on this data (Schneider & Meil 2008; Schneider & Collet 2010).

Between 2010 and 2012, a second wave of the survey was carried out. It consists of a follow-up survey conducted in Germany, France, Switzerland and Spain and of additional surveys conducted in Germany and France.

In the *follow-up survey* 1,735 respondents of the initial 2007 survey were interviewed a second time (Germany: N = 504; Spain N = 537; Switzerland N = 440; France: N = 254). The resulting four-country, two-wave panel contains data from 2007 as well as 2010-2012 and allows more insights into the above mentioned research interests by allowing for longitudinal analysis. Importantly, the opportunity to adopt a longitudinal perspective is further enhanced by retrospective (biographical) questions about family and employment histories and spatial mobility experiences that were added to the second-wave questionnaire. A further aim of implementing the second wave was to obtain more information about several topics that had not been captured yet in detail with the first wave questionnaire. These topics include, for example, social networks and volunteerism (cf. Table 22).

In Germany and France the follow-up sample was supplemented with *additional surveys (oversampling)*, a random selection of 249 German and 250 French job-related spatially mobile persons. This way, a wider empirical basis could be generated to enable differentiated analyses of the newly added topics of the second wave, especially for the target population of job-related spatially mobile persons.

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<sup>1</sup> This document is based on and contains sections of published methodology reports, describing the first wave of the survey (Schneider et al. 2011), the second wave in Germany (Skora et al. 2012) and the four-country, two-wave panel data set (Skora et al. 2013). While the report by Schneider et al. (2011) is recommended for detailed information concerning the first wave of the survey, this document contains comprehensive information about the second wave of the survey, i.e. the panel data set and the oversampling in Germany and France.



The following institutions conducted the national samples of the second-wave survey:

Germany: Federal Institute for Population Research, Wiesbaden

Spain: Universidad Autónoma de Madrid

Switzerland / France<sup>2</sup>: École Polytechnique Fédérale de Lausanne

The implementation and funding of the second wave depended on each national team's own initiative. The realisation of the second wave in France and Switzerland was supported by the Mobile Lives Forum.<sup>3</sup> In Spain, the realisation was supported by the Ministry of Economy and Competitiveness (CSO2010-10800-E).

The data set of the second wave, containing the two-wave panel survey conducted in Germany, France, Spain and Switzerland as well as the additional surveys conducted in France and Germany, is available as a scientific use file for secondary analysis (<https://dbk.gesis.org/dbksearch>; study number: ZA 5066, doi:10.4232/1.12644). For scientific use, only formal permission by the primary researchers is necessary, interceded by the data archive where it is ordered, guaranteeing the non-commercial purposes of the analyses, compliance with laws on data protection, as well as a reference in every publication based on the data. If you publish work that is based on analyses with Job Mobilities and Family Lives in Europe (JobMob) data, we kindly ask you to refer to the primary researchers by the following (or an equivalent) sentence:

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We also ask you to inform the primary researchers about each publication. Please use the contact e-mail address mentioned in the contact information in Section 10.

**Table 1: Overview of the surveys in key words**

First Wave (2007)	Six-country, cross-sectional survey, target population: resident population, aged 25 to 54 in Germany, France, Switzerland, Spain, Poland and Belgium in 2007 with access to a landline phone (N = 7,220)
Second Wave (2010-2012)	<b>Follow-up survey</b> in Germany, France, Switzerland and Spain resulting in a four-country, two-wave panel. Target population: resident population, aged 25 to 54 in 2007 with access to a landline phone (N=1,735) <b>Additional Surveys</b> in Germany and France, oversampling of highly mobile individuals. Target population: job-related spatially mobile resident population, aged 25 to 54 at the time of the interview with access to a landline phone (N=499)

Source: Job Mobilities and Family Lives in Europe.

## 2 Investigated Manifestations of Spatial Mobility

The Job Mobilities and Family Lives in Europe project focuses on a broad concept of job-related spatial mobility accounting for different manifestations of mobile living. Generally, it is possible to distinguish between relocation mobility (people change their place of

<sup>2</sup> We thank Estelle Bonnet, Université Lyon 2, for providing the addresses of the French first-wave participants.

<sup>3</sup> <http://en.forumviesmobiles.org/>

residence by moving to another location on a long-term basis for professional reasons) and circular mobility (people commute over a long distance to their workplace on a daily or a weekly basis or frequently stay away from home overnight for professional reasons). The latter often continues over longer periods in the life course. While the first wave of the survey in 2007 and the additional surveys of 2010-2012 each focus on relocation *and* circular mobility, for several reasons the 2010-2012 follow-up survey concentrated mainly on circular mobility.<sup>4</sup> The different forms of circular mobility can be described as follows:

- **Long-Distance Commuters** commute to their workplace at least three times a week and travel at least one hour each way.
- **Overnighters** spend at least 60 nights per year away from home because of job requirements. Overnighters can be further differentiated into the following subgroups:
  - **Shuttlers** maintain a secondary residence near their workplace that is located too far away from their home to commute on a daily basis. Their principle residence typically serves as their home on weekends.
  - People living in a **Long-Distance Relationship** do not share a common household with their partner due to job-related reasons, but maintain an independent household. The time to travel one-way between the two domiciles is at least one hour.
  - **Vari-Mobiles** engage in recurring but irregular overnight trips of varying rhythms. This category typically comprises people who often are on business trips.
- **Multi-Mobiles** are mobile in at least two of the described ways simultaneously.

In order to assess the spread, circumstances and impact of relocation mobility on private life, so-called **Recent Relocators** were identified during the interviews of the first wave and the additional surveys. These respondents have relocated for job-related reasons over a distance of at least 50 km within the last three years before the day of the interview.

However, for the sample of the *follow-up survey* of the second wave, we expected the vast majority of respondents who relocated after the first-wave interview to drop out of the survey. This can be expected because in most cases relocations involve a change of the landline telephone number. At the same time, a valid landline number was necessary to contact the respondent again. As a consequence, the German and the Spanish research team decided not to try to identify “new” Recent Relocators at the beginning of the follow-up survey of the second wave.

Instead, respondents who were identified as being a Recent Relocator at the first-wave interview (i.e. they moved between 2004 and 2007) were asked some move-related questions in the follow-up questionnaire (cf. Section 8.2). This approach allows a comparison of the answers of the first and the second wave of the same respondents, giving the opportunity to investigate changes concerning the situation and well-being of relocators as they proceed in adapting to their new residence.

In Switzerland and France, however, efforts were made to additionally identify “new” Recent Relocators (i.e. respondents who moved for job-related reasons over a distance of at least 50 km within the last three years before the day of the second-wave interview). Prior to the fieldwork, the polling institute that conducted the second wave in France and Switzerland did some research based mainly on phone books and online directories to detect possible changes of postal addresses and phone numbers of the target persons (cf. Section 5.3). Since only very few Recent Relocators could be identified in the follow-up survey, the two-wave panel data set actually deals with circular mobility only.

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<sup>4</sup> These reasons will be discussed in detail later in this section.



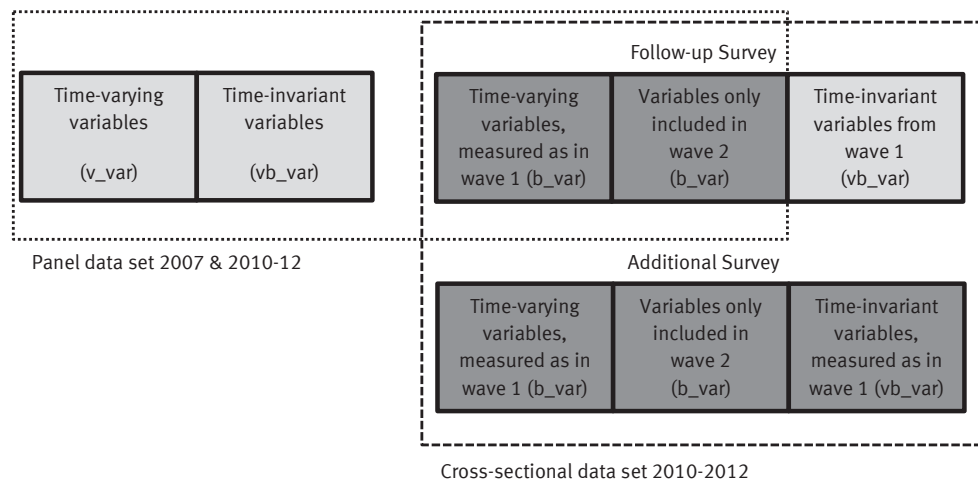
By contrast, in the additional surveys of the second wave in Germany and France, which sampled new respondents using a similar strategy as in the first wave, Recent Relocators were identified. As in the first-wave interviews, those respondents were asked detailed questions about the causes and consequences of their “recent” relocation that occurred within the last three years before the survey.

Although the follow-up survey focuses on the various forms of circular mobility, the second-wave data set nevertheless allows us to analyse relocation mobility. This is either possible by analysing first-wave Recent Relocators that were re-interviewed in the second wave (and have not relocated between the first and the second survey) or by analysing the data of the additional surveys in Germany and France.

### 3 Structure of the Second-Wave Data Set

The surveys in 2007 and 2010-2012 resulted in a data set that can be divided into two parts: First, there is a two-wave panel data set with information from 2007 (first wave) and 2010-2012 (second wave). Secondly, there is a cross-sectional data set containing information from 2010-2012 (second wave). For better understanding, this structure will be illustrated here in detail (cf. figure 1).

Figure 1: Structure of the data set <sup>A</sup>



Source: Job Mobilities and Family Lives in Europe. Table based on Skora et al. 2012, p. 26 (modified).

<sup>A</sup> Light-coloured fields: variables were measured 2007; dark-coloured fields: variables were measured 2010-2012

The *panel data set* consists of the data from the first wave in 2007 and the data of the follow-up survey, collected from 2010 to 2012. It includes variables that were measured in both waves, but it also includes variables that were measured only in the first or the second wave.

Variables that may vary over time were measured twice to capture possible changes between the interviews. In addition, some variables were included that were not part of the survey in 2007. Those newly introduced variables contain, for instance, retrospective information about previous mobility experiences (cf. Section 4 and Appendix). Besides this, the panel data set also offers various time-invariant variables that were only meas-

ured during the interviews in 2007. We decided not to ask some (time-varying) variables of the survey in 2007 again in the second-wave interview in order to reduce respondent burden (cf. Appendix).

By contrast, the *cross-sectional data set 2010-2012* is made up of data of the follow-up survey and the additional surveys in Germany and France. The questionnaire of the additional surveys was longer than that of the follow-up survey because it had to measure several time-invariant variables. This was not necessary in the follow-up survey since the corresponding variables were already part of the survey in 2007.

Importantly, the cross-sectional data set includes respondents of the follow-up survey aged 25 to 54 in 2007. During the follow-up survey (2010-2012) those respondents were three to four years older, depending on the different dates of data collection. By contrast, respondents of the additional surveys are 25 to 54 years old. Thus, the age groups of both surveys are not congruent.

To simplify the structure of the data set, the variable names refer to the survey to which they belong: Variables measured in the first wave usually have names starting with “v” (e.g. v\_var). The names of second-wave variables start with “b” (e.g. b\_var). Names of time-invariant variables, resulting from questions that were asked during the first-wave interview and the additional surveys, start with prefix “vb”.

## 4 Content of the Questionnaire

The content of the questionnaires used in the follow-up as well as in the additional surveys of the second wave are quite similar to the questionnaire of the first wave.<sup>5</sup> Many variables were identically collected for a second time in order to capture potential changes over the years. Nevertheless, the interviews of the follow-up survey and the additional surveys are based on a modified questionnaire. Several questions of the first wave were not asked a second time. However, the questionnaire additionally captures previous experiences with mobility, detailed biographical questions about the family development and the relationships of the respondents as well as their occupational history (cf. Appendix). Thus, the follow-up survey and the additional surveys enhance the content of the data by extending the longitudinal information.

The questionnaire of the second-wave additional surveys, just like the questionnaire of the first wave in 2007, includes a set of questions that were needed in order to determine at the beginning of the interview whether or not the contacted person is spatially mobile for job-related reasons. These questions, which were also asked in the follow-up survey, were used during the sampling phase of the additional surveys as a screening interview to decide whether or not the interview should be continued (cf. Section 6.2).

The (basic) questionnaire is divided into seven major sections (A to G) and 17 topics (cf. Table 2). As in the first wave, it starts by assessing the type and extent of job-related spatial mobility of the contacted person (A). Having collected this information in both waves, changes in mobility status can be ascertained.

After the identification of job-mobility, the interview continues with questions about the respondent’s national origin, past relocation experiences and current residence. This section furthermore includes questions about social networks and volunteerism that were not asked in the first wave (B). The third section consists of questions concerning the respondent’s current intimate relationship and family life. Additionally, information about past relationships and the birth of children were collected using retrospec-

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<sup>5</sup> The questionnaires are available at GESIS Leibniz Institute for the Social Sciences (<https://dbk.gesis.org/dbksearch>; First wave: ZA 5065; Second wave: ZA 5066).

tive questions. In the second wave, this biographical information was collected in much more detail than in the first wave (C). The current occupational situations as well as the career history and past job-induced mobility experiences are central topics of the fourth section (D). In the fifth part, job-mobile respondents are asked to evaluate and describe their mobile way of life in detail (E). The sixth section includes questions for detecting the potential and ambition to become or to remain mobile for job reasons (F). A series of socio-demographic characteristics, attitudes and health-related aspects were collected at the end of the interview (G).

**Table 2: Overview of the questionnaire content**

A) Job-Mobility I
1) Identification of Job-Mobility Employment Status, Daily Long-Distance Commuters, Overnigheters, Recent Relocators Long Distance Relationships, Job-Mobility of the Partner
B) Origin and Places
2) Life History 3) Residence, Social Networks, Volunteerism
C) Family Life
4) Partnership 5) Occupational Situation of the Partner 6) Partnership Biography 7) Children, Child Care, Grandchildren, Household and Parents 8) Quality of Partnership, Division of Labour and Housework
D) Work I
9) Job Biography and Past Mobility Experiences 10) Current Occupational Situation (a): Working for Pay 11) Current Occupational Situation (b): Not Working for Pay
E) Job-Mobility II (only for job-mobile people)
12) Phenomenology of Job-Mobility Daily Long-Distance Commuters, Overnigheters, Shuttlers (Overnigheters I), Vari-Mobiles (Overnigheters II), Long-Distance Relationships, Recent Relocators 13) Circumstances of Job-Mobility 14) Consequences of Job-Mobility
F) Work II
15) Readiness to Become Job-Mobile
G) Individual Characteristics
16) Attitudes Regarding Job, Job-Mobility and Family 17) Health, Stress and Satisfaction 18) Socio Demographics

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2012, p. 5.

Obviously, not all questions were asked to all respondents. Especially the question of whether or not a respondent is job-mobile and in what way he or she is mobile activates and inactivates specific sets of questions in which the mobile lifestyle is described in greater detail.

Although the questionnaire is almost identical in the participating countries, it did nevertheless allow for a few minor national variations. Most of these variations were indispensable in order to take certain specific national circumstances into account. These include, for instance, additions to the marital status in several countries (e.g. “PaCS” in France or the German “Eingetragene Lebenspartnerschaft” for homosexual couples), the distinction of a semi-public “sector of associations” (in addition to the public and the private sector of occupation) in France, a question regarding language barriers in Switzerland, and an item regarding the regional attachment in Spain (cf. Table 3).

**Table 3: Country-specific questions and question variations**

Variable(s)	Question in the questionnaire	Asked only in ...
<b>First-wave survey 2007</b>		
v0109	Did you own or rent the dwelling where you first moved when you left your parents' home?	Spain
v020503	Now how about your attachment to the region you live in, how intensely attached do you feel?	Spain
v0207	How often do you have contact with your good friends, by phone or in person?	Switzerland
v0208	I'm going to read three more statements. Which one fits you best? (1) Most of my friends know each other. (2) Some of my friends know each other. (3) Few of my friends know each other.	Switzerland
v0306	What is your current legal marriage status? (5) PaCS / eingetragene Partnerschaft	Germany, France, Switzerland
v0316a-e v0703a1-e1 v0802	What is/are your partner's current occupation(s)? / What is/are your current occupation(s)? / What was your last occupation? → No open description of the occupation was stored, but pre-coded 3-digit SOC codes (cf. Section 8.4).	Spain
v0316a-e	What is/are your partner's current occupation(s)?	Germany, France, Spain
v0319	Which of your partner's jobs is his/her main job?	Germany, France, Spain
v0709a	Is that a private or a public employer or an association? (3) Sector of associations	France
v0709b	Is that a private or a public employer?	Germany, Spain, Switzerland
v090411	When you moved, did you cross a language barrier?	Switzerland
v1614a, b	Net household income, as an open question	Germany, France, Switzerland
v161401-3	Net household income: answered openly or in categories (in Spain: answers only in categories.)	Germany, France, Switzerland

continued Table 3

Variable(s)	Question in the questionnaire	Asked only in ...
<b>Follow-up survey 2010-2012</b>		
b020503	Now how about your attachment to the region you live in, how intensely attached do you feel?	Spain
b0316a	What is your partner's current occupation? Would you please name his/her activity?	Germany, France, Spain
b0707	Are you employed by someone else or self-employed? (4) verbeamtet / fonctionnaire	Germany, France
b0709a	Is that a private or a public employer or an association?	France
b0709b	Is that a private or a public employer?	Germany, Spain, Switzerland,
b1609	And do you have motorway access within 20 minutes of your home?	France, Switzerland
b1610	From your (main) place of living, can you reach railway station with regional trains within 20 minutes?	France, Switzerland
b1611	What about a railway station with other trains (High speed and inter-city trains), do you have such a station within 20 minutes?	France, Switzerland
b1612	Can you reach an airport within 45 minutes?	France, Switzerland
b090404A	Did you move because of your current job or because of a job you don't have anymore?	France, Switzerland
b090404B	Did you move because of your first or because your second job, or because of a job you don't have anymore?	France, Switzerland
b090404C	Because of which of your jobs did you move?	France, Switzerland
b090401	Have you ever before lived in this region or town where you moved?	France, Switzerland
b090402	Did you already have friends and/or relatives in the new place before you moved?	France, Switzerland
b09040301	Please tell me how important it is for you to maintain relationships at your previous location. Is it not important at all, not important, important or very important?	France, Switzerland
b090411A	Was this move across national borders?	France, Switzerland
b090411B	When you moved, did you cross a language barrier?	Switzerland
b090410	Please tell me the name of the town where you have been living before the move?	France, Switzerland
b090413	Did this move involve changing employers?	France, Switzerland
b090414A	Was this move a return from a previous assignment?	France, Switzerland
b090414B	Did your employer send you to the new location?	France, Switzerland
b090415	When you moved, was your initial plan that you stay?	France, Switzerland
b090416	Is that still the plan?	France, Switzerland
b090417	Do you have current plans to return?	France, Switzerland
b090418A	When do you plan to return? Which year?	France, Switzerland
b090418B	And which month?	France, Switzerland

continued Table 3

Variable(s)	Question in the questionnaire	Asked only in ...
<b>Additional surveys 2010-2012</b>		
b0314	Does your partner currently have more than one job?	Germany
b0317a	How many hours does your partner usually work per week?	Germany
b0317b	All jobs together: How many hours does your partner work normally in a week?	Germany
b0316a	What is your partner's current occupation? Would you please name his/her activity?	Germany
b0320	Does he/she have a fixed-term or an open-ended work contract?	Germany
b0321	How free is your partner in deciding when to start and when to end his/her work day?	Germany
b0707	Are you employed by someone else or self-employed? (4) verbeamtet / fonctionnaire	Germany, France
b0709a	Is that a private or a public employer or an association?	France
b0709b	Is that a private or a public employer?	Germany
b140111	You are very good in reading maps and finding your way.	France
b140113	You are very good at being on time at appointments.	France
b140114	You are very good at understanding time tables.	France
b1605	Do you personally have a laptop?	France
b1606	How about having web access in your home?	France
b1607	Do you personally have a car or motorcycle for your own use?	France
b1608	On average during the last twelve months how frequently did you use it?	France
b1609	And do you have motorway access within 20 minutes of your home?	France
b1610	From your (main) place of living, can you reach railway station with regional trains within 20 minutes?	France
b1611	What about a railway station with other trains (High speed and inter-city trains), do you have such a station within 20 minutes?	France
b1612	Can you reach an airport within 45 minutes?	France
b1613	On average during the last twelve months how frequently did you use public transport of any kind?	France

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 14 (modified).

The educational level was adjusted according to the various national school systems and later harmonised according to the international ISCED classification (cf. Section 8.3). In addition to an open household income question, deviating only in Switzerland due to the currency, respondents were able to provide their monthly and yearly incomes based on categories. Here, the scale was built around the national median household income, symmetrically at plus and minus 15%, 30% and 50% of the median. The resulting income variable is comparable between countries. In Germany, for instance, the monthly median income is 3,100 euros. If a German respondent earns, for instance, 1,600 euros (= median – 50%) or less per month, he or she would choose income category 1. If a German respondent earns between 1,600 euros (= median – 50%) and 2,200 euros (= median – 30%), he or she would choose income category 2. Respondents earning between 2,200 euros (= median – 30%) and 2,600 euros (= median – 15%) would choose income category 3 and so on. To illustrate this, the questionnaires contain tables with



the range of the income categories in Germany and the other countries (cf. first-wave questionnaire: variables v161402 / v161403; second-wave questionnaire: variables b161402 / b161403).

## 5 Two-Wave Panel: Design, Sampling and Fieldwork

### 5.1 Sampling of the First Wave (2007)<sup>6</sup>

The JobMob Survey had two goals: First, to collect representative data so that mobility in its various forms could be described. Secondly, the data collection aimed to provide a large enough subsample of mobile people so that their situation could be analysed in a differentiated way. As a consequence, the 2007 sample was divided into two subsamples, S1 and S2, collected in two different sampling phases.

The first subsample (S1) was a fully randomised sample of the resident population aged 25 to 54 with access to landline phones in the six countries that participated in the first wave. This subsample serves the purpose of assessing the prevalence and variety of job-related spatial mobility patterns in the participating European countries in a representative way. In the second subsample (S2), only people who were mobile for job-related reasons were interviewed. This oversampling aims to raise the relatively small number of job-mobile people included in the S1 sample in order to allow for more differentiated analysis with this group.<sup>7</sup> For both subsamples, a two-level sampling technique was used for randomization. At the first level, a sample of landline phone numbers was randomly generated. At the second level, the person to be interviewed within a contacted household was identified by means of a screening interview.

For the subsample S1, the entire interview was carried out if a person aged 25 to 54 years old was living in the contacted household. In households with more than one eligible person, the last birthday method was applied: In this case, the one whose birthday was most recent was interviewed.

By contrast, the subsample of S2 was restricted to people who were job-related spatially mobile. After a person aged 25 to 54 was identified, the screening interview continued by assessing the mobility status of this person. People who were not job-mobile were screened out, while mobile people were asked to participate in the entire interview.

The fieldwork for the first wave was carried out between May and August 2007. In five countries – Germany, France, Spain, Switzerland, and Belgium – the survey was carried out by CATI. In Poland, a CAPI technique was chosen (cf. Schneider et al. 2011, p. 7).

The following table gives an overview of the sample dropouts and response rates of the first wave for those four countries that participated in the follow-up survey of the second wave (2010-2012).

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<sup>6</sup> A detailed description of the sampling procedure of the first wave is provided by Huynen et al. 2008 and Schneider et al. 2011.

<sup>7</sup> One further advantage of oversampling job-mobile people is the increased reliability of empirical distributions among this subgroup due to a reduction in the standard error. The data set of the first wave provides a weighting variable to correct this oversampling.

**Table 4: Number of phone numbers and contacts at first wave (2007)**

	Germany	France	Spain	Switzerland
Total no. of phone numbers generated	38,660	38,367	51,388	16,201
Non-existent phone numbers	5,388	1,123	2,863	1,111
Existent phone numbers	33,272	37,244	48,525	15,090
Contact with no person in the target population <sup>A</sup>	11,449	2,879	20,480	7,137
Contact with a person potentially in the target population	21,823	34,365	28,045	7,953
No contact (phone never answered) <sup>B</sup>	6,110	10,594	5,732	1,182
Refusals / abandons <sup>B</sup>	12,915	19,429	18,196	2,119
Completed interviews <sup>C</sup>	2,798	4,342	4,117	4,652
Screening interviews only	1,135	3,119	2,984	3,645
Full interviews (S1+S2)	1,663	1,223	1,133	1,007
Response rate <sup>D</sup>	12.8%	12.6%	14.7%	58.5%

Source: Job Mobilities and Family Lives in Europe. This table is taken from Schneider et al. 2011, p. 16.

<sup>A</sup> This category contains phone numbers of private households in which no person aged 25 to 54 is living, as well as phone numbers of offices, fax numbers, etc.

<sup>B</sup> This category contains (mostly) phone numbers of which it is unclear whether or not they belong to a person within the target population so that it is unclear to what degree these numbers represent a potentially selective dropout.

<sup>C</sup> The number of “completed interviews” includes screening interviews in the S2 sampling phase that did not lead to full interviews (because the contacted person was identified as non-mobile or refused to continue with the full interview after the screening).

<sup>D</sup> The presented response rates (completed interviews divided by contacts with a person potentially in the target population) underestimate the true rates because all immediate refusals and all contact attempts without contact are treated as selective dropouts – although a large share presumably do not correspond to a person in the target population. A more realistic estimate for Germany, treating the contact attempts without contact as people outside the target population, is 18%.

Response rates are a widely used measure for evaluating the quality of social science surveys. The response rate of the study at hand can be defined as the ratio of the number of respondents divided by the number of households with at least one target person living in it within the randomly generated sample of telephone numbers. The final sample can be biased if target persons who were selected by the sample of landline phone numbers are not ultimately interviewed. By contrast, generating numbers that do not exist or do not belong to a household of a target person does not threaten the sample structure. Those case-neutral dropouts merely reduce the size of the initially generated sample.

However, if dropouts are caused by immediate refusal or by non-answered phones, it is uncertain whether or not they belong to a person in the target population. Therefore, valid response rates that rely on all target persons of the generated sample cannot be calculated. Instead, “minimum response rates” are presented in Table 4, which express the ratio of the number of respondents divided by the number of telephone numbers that potentially belong to people within the target population.<sup>8</sup> Thus, they are based on the assumption that all immediate refusals and all non-answered phones belong to people within the target population and thereby underestimate the true response rates.

<sup>8</sup> The report of a minimal response rate, treating all dropouts that cannot be clearly classified as ‘selective’, is also proposed by The American Association for Public Opinion Research 2011.

Among the country differences presented in Table 4, one is striking: In Switzerland, the numbers of dropouts are much lower and the (minimum) response rate, accordingly, is much higher than in the other nations in which CATI was used. The reason for this difference, in short, is that the Swiss polling institutes used a modified sampling strategy: The randomly generated phone numbers were mostly verified as existing prior to the actual start of the CATI survey. A letter was then sent to each selected household, explaining the intention of the survey and announcing a phone call by an interviewer, prior to the first contact by phone. Up to 20 call attempts were made to establish contact – more than in the other countries where usually ten attempts were made.

## 5.2 Target Population of the Two-Wave Panel

By definition, conducting a panel study implies the collection of data from the same individuals at different points in time, whereas in a best-case scenario, all respondents interviewed in the first wave also participate in the following waves. As a follow-up survey was implemented in four countries, the target population of the resulting two-wave panel survey is congruent with the target population, which was defined in these countries for the first wave. It is the resident population aged 25 to 54 in 2007.

The age limit focuses attention on people of theoretical interest: First, it focuses on people with a high likelihood of being on the labour market, so that they have a realistic chance or risk of being mobile for a job. At the same time, it focuses on people in a typical phase of family formation and family life. This way, mobility and its interaction with the family situation can be studied in greater detail.

The target population is not restricted to job-mobile people. The inclusion of non-mobile as well as economically inactive people in the target population of the study is expedient for two reasons. On the one hand, such a definition allows for representative numbers on the spread of job mobility and specific mobility types in the population exposed to the risk of being mobile. Furthermore, non-mobile and economically inactive people serve as a reference group when assessing the specific situation of mobile people as well as the effects of mobility on private life.

The target population is subject to further restrictions that are not criteria for the theoretical population, but could not be avoided for methodological reasons. Thus they became aspects of the target population of the final sample. First, due to the chosen sampling technique only people with access to a landline phone had a chance to be part of the sample because the sampling procedure was realised by generating random phone numbers that did not account for the digit structure of mobile phones. Secondly, language skills, either in the national language(s) of the respective survey country or in English, were a precondition for participation in an interview.

Regarding the two-wave panel, an individual of the target population had to meet several prerequisites to be included in the data. First of all, the individual had to have already been selected and interviewed in 2007. Therefore, the structure of the panel data is influenced by the sampling procedure (including several sources of potential sampling biases) of the first wave (cf. Section 5.1). Furthermore, the individuals had to give their permission to be contacted and interviewed a second time. This permission was asked for at the end of the first-wave interview. It is reasonable to expect that refusals vary systematically across different socio-demographic attributes. Finally, respondents who agreed to participate again had to be successfully contacted and interviewed during the fieldwork for the follow-up survey (cf. Section 5.3). Thus, the representativeness of the sample might be limited due to the sampling technique or selective dropouts (cf. Section 5.4 and Section 5.5). In order to correct possible biases, weighting variables were created (cf. Section 5.6).

In 2007, the JobMob Survey consisted of two subsamples: Subsample S1 was a sample of the resident population aged 25 to 54 in the participating countries. Subsample S2 included only people mobile for job-related reasons (cf. Section 5.1). In the follow-up survey of 2010-2012, respondents of subsample S1 and S2 were interviewed. As a consequence, spatially mobile people had a higher probability of becoming part of the sample in 2010-2012. However, this bias can be corrected by the weights provided in the data set (cf. Section 5.6).

### 5.3 Activities between the Waves and Fieldwork

While the first wave was funded by the Sixth Framework Programme for Research and Technological Development of the European Commission, the follow-up study depended on each national team's own initiative. A second wave could be realised in Germany, France, Switzerland and Spain. However, the fieldwork started at quite different points in time in each country (cf. Table 5).

**Table 5: Periods of fieldwork and time spans between the waves**

	1st wave	2nd wave
Germany	10.05.2007 - 09.07.2007	03.05.2010 - 01.07.2010
France	30.05.2007 - 19.07.2007	12.12.2011 - 01.02.2012
Spain	18.05.2007 - 25.06.2007	20.09.2011 - 05.12.2011
Switzerland	10.05.2007 - 18.08.2007	17.10.2011 - 30.11.2011

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2013, p. 11.

In Germany, the fieldwork for the second wave took place in 2010. It was conducted almost exactly three years after the fieldwork in 2007. In France, Spain and Switzerland, the fieldwork was carried out in the second half of 2011 and extended into 2012 in France. Thus, the time span between the two waves amounts to more than four years in these countries.

#### 5.3.1 Preliminary Activities and Fieldwork in Germany

The first efforts to realize the second wave of the survey were carried out in Germany. In order to ascertain the potential number of respondents in the follow-up sample, all respondents who expressed their willingness to participate again during the first wave were contacted one year prior to the scheduled fieldwork for the second wave. The contact attempts were conducted by the German research team. As a result, 806 target persons confirmed their willingness, while 129 refused a follow-up interview in the course of this activity, reducing the pool of potential participants of the follow-up survey. 332 respondents could not be reached at all. All target persons who did not explicitly refuse to participate again, including those without successful contact attempts, were treated as potential respondents for the follow-up survey. Thus, 1,138 contact details (806+332) were handed over to the German polling institute SUZ (Sozialwissenschaftliches Umfragezentrum), which had conducted the first wave in Germany.

The fieldwork took place from May to July 2010. It was carried out almost exactly three years after the fieldwork in 2007. The interviews were conducted using the CATI technique. Up to eight attempts were made to establish contact with the target person. Finally, 508 interviews were realised (cf. Table 6). The average duration of the interviews was 32 minutes. The minimum duration was 18 minutes and the maximum duration was 83 minutes.

### 5.3.2 Preliminary Activities and Fieldwork in France

In France, respondents were contacted by the French polling institute TNS-SOFRES about 6 months after the first-wave interview, assessing their readiness to be interviewed again. TNS-SOFRES was the polling institute engaged to conduct the first wave in France. However, due to diverse reasons it was decided not to engage TNS-SOFRES for carrying out the fieldwork for the second wave. Therefore, all respondents who gave their permission to be re-interviewed immediately after the first-wave interview had to confirm their decision yet again, having been informed that the polling institute would change. This contact was still conducted by TNS-SOFRES. Of the 1,048 people who had agreed immediately after the first-wave interview, 725 agreed again. The fieldwork for the second wave in France was then assigned to the polling institute DemoSCOPE, which was already assigned to carry out the subsample in Switzerland. For France, DemoSCOPE thus started with the contact information of 725 individuals. Approximately one week prior to the beginning of the fieldwork, a letter was sent to respondents whose postal address DemoSCOPE had found in online directories. The letter introduced the survey and explained the procedures of the interview, such as the average length of the interview. This measure was undertaken to better inform potential respondents about the purpose and importance of the study and to improve response rates. Moreover, research of online directories allowed the polling institute to detect the change of addresses and phone numbers of some (but only a few) target persons.

The fieldwork took place from December 2011 to February 2012. Thus, it was carried out more than four years after the fieldwork in 2007. The interviews were conducted using the CATI technique. Up to 20 attempts were made to establish contact with the household. Finally, 254 interviews were realised (cf. Table 6). The average duration of the interviews was 42 minutes.<sup>9</sup> The minimum duration was 20 minutes and the maximum duration was 89 minutes.

### 5.3.3 Preliminary Activities and Fieldwork in Switzerland

In Switzerland, the fieldwork was carried out by the polling institute DemoSCOPE, which had realised the Swiss sample in the first wave. The polling institute had detailed contact information of all 856 respondents who had expressed their willingness to participate again immediately after the first-wave interview in Switzerland. Approximately one week prior to the beginning of the fieldwork, a letter was sent to all of these respondents. As in France, the letter introduced the survey and explained the procedures of the interview, such as the average length of the interview. This measure was undertaken to better inform potential respondents about the purpose and importance of the study and to improve response rates. Moreover, research of phone books and online directories allowed the polling institute to detect the change of addresses and phone numbers of a few target persons.

The fieldwork took place from October to November 2011. Thus, it was carried out more than four years after the fieldwork in 2007. The interviews were conducted using the CATI technique. Up to 20 attempts were made to establish contact with the household. Finally, 444 interviews were realised (cf. Table 6). The average duration of the interviews was 47 minutes. The minimum duration was 24 minutes and the maximum duration was 106 minutes.

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<sup>9</sup> Compared to Germany, the interviews in France lasted ten minutes longer on average. In Switzerland, the interviews were even longer (cf. section 5.3.3). This difference can be explained by the fact that the French and Swiss questionnaires contained several questions that were not asked in Germany and Spain (cf. section 4).

### 5.3.4 Preliminary Activities and Fieldwork in Spain

In Spain, the respondents were not contacted prior to the fieldwork for the follow-up survey of the second wave. Thus, all telephone numbers obtained from the respondents at the end of the first-wave interview served as the basis for the sampling of the follow-up survey of the second wave.

The fieldwork took place from September to December 2011. Therefore, it was conducted more than four years after the fieldwork in 2007. The fieldwork was carried out by the polling institute Metroscopia, which had realised the Spanish sample in the first wave. The interviews were conducted using the CATI technique. Up to 19 attempts were made to establish contact with the household. Finally, 552 interviews were realised (cf. Table 6). The average duration of the interviews was 32 minutes.<sup>10</sup>

### 5.4 Dropouts and Response Rates of the Follow-Up Survey

The following table presents the number of sample dropouts broken down by reasons (cf. Table 6).<sup>11</sup> In addition, the table reports the response rates of the follow-up study in each country. These rates express the ratio of the number of analysable panel interviews divided by the number of (full) interviews that were conducted in the first wave in each country.

**Table 6: Dropouts and response rates of the follow-up survey**

	Germany	France	Spain	Switzerland
Full interviews in 2007 (first wave)	1,663	1,223	1,133	1,007
Refusals immediately after the first-wave interview	396	175	105	151
Willingness immediately after the first-wave interview	1,267	1,048	1,028	856
Refusals during contacts between the waves <sup>A</sup>	129	323		
Telephone numbers remaining for fieldwork of wave 2	1,138	725	1,028	856
Ineligible households (numbers of offices or fax numbers; target person unknown; difficulties communicating)	60	21	-	38
No contact (non-existent phone number; phone never answered) <sup>B</sup>	414	384	175	190
Refusals / abandons <sup>C</sup>	156	57	316	184
Full interviews	508	254	552	444
Deleted cases due to inconsistent answers comparing both waves	4	0	15	4
Analysable panel interviews	504	254	537	414
Response rate <sup>D</sup>	30.3%	20.8%	47.4%	43.7%

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2013, p. 13.

<sup>A</sup> For France, this category might also include respondents who could not be reached six months after the first-wave interview.

<sup>B</sup> This category contains unobtainable phone numbers (non-existent phone numbers) as well as free line signal or busy signal or answering machine at every attempt (phone never answered).

<sup>C</sup> This category contains refusals of the contact person or the target person as well as target persons who abandoned the interview

<sup>D</sup> Response rate = analysable panel interviews divided by full interviews in 2007.

<sup>10</sup> For Spain, no information about the minimum or maximum interview duration is available.

<sup>11</sup> As each polling institute has slightly different ways of coding dropouts, the numbers are not perfectly comparable from one country to another.



The low response rates in France and Germany compared to the rates in Spain and Switzerland are striking. Focusing on the dropouts in France, mainly two reasons for the low response rate can be identified. First, many respondents (n=323) refused to participate again (or could not be reached at all), when – six month after the first-wave fieldwork was carried out – the polling institute TNS-SOFRES once more assessed their willingness to participate again in the survey (cf. Section 5.3.2). Secondly, many contact attempts (n=384) were not successful during the fieldwork for the second wave. One reason might be the comparatively high rate of relocation mobility in France (cf. Lück & Ruppenthal 2010), which makes conducting a follow-up survey more difficult (this is explained in the following).

For Germany, we observed a relatively high rate of refusals immediately after the first-wave interview (n=396; 24%). Moreover, a high number of unsuccessful contact attempts were recorded during the fieldwork for the second wave (n=414).

Overall, the study is characterised by some attributes that might contribute to the high numbers of unsuccessful contact attempts. First, compared to other panel studies, the time interval between the waves was quite long. In addition, the sample of the first wave comprises largely working people. Since, furthermore, the first wave included an over-sampling of people who are job-mobile, the (unweighted) sample of the first wave is characterised by a relatively high proportion of job-mobile people. It seems reasonable to assume that working and – even more – job-mobile people spend large parts of the day away from home and thus are difficult to reach by landline phone. Moreover, people who experienced relocations in the past have a relatively high propensity for future moves (cf. Viry et al. 2010). Thus, an above average number of people who experienced a long distance move within the last three years prior to the first-wave interview might have dropped out of the panel sample due to repeated relocations.

The data was subjected to an extensive process of data cleansing after the fieldwork was finished (cf. Section 7). Various plausibility checks were performed. As a result, some respondents were deleted from the panel data set due to contradictory information that became apparent when comparing the answers of the two waves (cf. Table 6). These contradictions suggest that the person interviewed in the second wave was not the same person interviewed in the first wave in 2007.

## 5.5 Selectivity Analysis

In this section we examine whether the sample is affected by selective dropouts. This is the case if the probability to drop out of the sample is statistically correlated with certain attributes of the respondents. To answer this question, the relation between the manifestation “asked again in the second wave” (respectively: “not asked again in the second wave”) and the values of different socio-demographic variables was analysed using contingency tables. Table 7 shows the share of respondents interviewed again (out of all respondents of the first wave) differentiated by socio-demographic characteristics.

Furthermore, the effects of the socio-demographic variables on the probability to participate again in the follow-up study were analysed by applying binary logistic regression models. The results of this multivariate analysis are presented in Table 8.

**Table 7: Selectivity of the drop-outs – bivariate <sup>A</sup>**

		Asked again in second wave? ("yes" in %)			
		Germany	France	Spain	Switzerland
Total		30.3	20.8	47.4	43.7
Sex	male	29.0	22.6	44.5	43.3
	female	31.2	19.6	49.3	44.1
Age	25-34 years	21.5	11.8	37.6	36.8
	35-44 years	32.5	24.0	51.8	41.3
	45-54 years	35.8	24.2	51.0	51.1
Education <sup>B</sup>	ISCED 0-2	31.6	19.8	44.4	42.6
	ISCED 3-4	28.6	20.6	51.4	48.3
	ISCED 5-6	29.9	21.5	46.9	44.0
Marital status	not married	25.9	13.7	41.5	34.1
	married	34.4	28.0	51.2	51.9
Familial situation	living alone	25.2	14.7	42.2	31.8
	living with partner & without children	31.9	18.8	48.8	47.8
	living without partner & with children	30.3	16.7	34.1	41.2
	living with partner & with children	34.3	25.1	53.1	53.9
Mobility <sup>C</sup>	non-mobile	32.0	25.3	52.1	45.9
	circular mobile	32.8	15.0	46.8	44.4
	relocation mobile	16.0	6.2	18.9	30.8
	relocation and circular mobile	12.2	6.7	22.2	23.3
Region in Germany	West Germany	29.7			
	East Germany	33.3			
Region in France	Ile-de-France		14.0		
	Bassin Parisien		22.6		
	Nord-pas-de-Calais		22.4		
	Est		21.4		
	Ouest		25.5		
	Sud-Ouest		17.2		
	Centre-Est		25.4		
	Mediterranee		23.6		
Region in Switzerland	Région Lémanique				56.9
	Espace Mitteland				44.8
	Nordwestschweiz				39.5
	Zürich				37.8
	Ostschweiz				37.0
	Zentralschweiz				43.4

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2013, p. 15.

<sup>A</sup> The values of all independent variables were measured at the first wave.

<sup>B</sup> The various national school levels are recoded into comparable general categories, based on the ISCED-97 classification (International Standard Classification of Education).

<sup>C</sup> circular mobile = Long Distance Commuters, Shuttlers, Long Distance Relationships, Vari-Mobiles; relocation mobile = Recent Relocator; relocation and circular mobile = Recent Relocator and at least one circular mobility type simultaneously.

**Table 8: Selectivity of the drop-outs – binary logistic regression (odds ratios) <sup>A</sup>**

		Asked again in second wave? (odds ratio <sup>D</sup> )			
		Germany	France	Spain	Switzerland
Sex	male ( <i>ref.</i> )	--	--	--	--
	female	1.045	0.669*	1.143	1.018
Age	25-34 years ( <i>ref.</i> )	--	--	--	--
	35-44 years	1.510*	1.958*	1.481*	0.958
	45-54 years	1.680*	1.804*	1.385+	1.386+
Education <sup>B</sup>	ISCED 0-2 ( <i>ref.</i> )	--	--	--	--
	ISCED 3-4	0.962	1.274	1.425*	1.296
	ISCED 5-6	1.070	1.825*	1.304+	1.085
Marital status	not married ( <i>ref.</i> )	--	--	--	--
	married	1.152	2.248*	1.087	1.593*
Familial situation	living alone ( <i>ref.</i> )	--	--	--	--
	living with partner & without children	1.082	0.973	1.063	1.376+
	living without partner & with children	0.992	0.953	0.570	1.273
	living with partner & with children	1.121	0.889	1.269	1.602+
Mobility <sup>C</sup>	non-mobile ( <i>ref.</i> )	--	--	--	--
	circular mobile	1.069	0.545*	0.828	0.999
	relocation mobile	0.497*	0.222*	0.231*	0.755
	relocation and circular mobile	0.385*	0.191*	0.313*	0.358*
Region in Germany	West Germany ( <i>ref.</i> )	--			
	East Germany	1.155			
Region in France	Ile-de-France ( <i>ref.</i> )		--		
	Bassin Parisien		1.799*		
	Nord-pas-de-Calais		1.544		
	Est		1.595		
	Ouest		2.199*		
	Sud-Ouest		1.280		
	Centre-Est		2.121*		
	Mediterranee		1.736+		
Region in Switzerland	Région Lémanique ( <i>ref.</i> )				--
	Espace Mitteland				0.578*
	Nordwestschweiz				0.464*
	Zürich				0.449*
	Ostschweiz				0.401*
	Zentralschweiz				0.557*
Nagelkerkes R <sup>2</sup>		0.041	0.130	0.074	0.093

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2013, p. 16.

<sup>A</sup> The values of all independent variables were measured at the first wave.

<sup>B</sup> The various national school levels are recoded into comparable general categories, based on the ISCED-97 classification (International Standard Classification of Education).

<sup>C</sup> circular mobile = Long Distance Commuters, Shuttlers, Long Distance Relationships, Vari-Mobiles; relocation mobile = Recent Relocators; relocation and circular mobile = Recent Relocator and at least one circular mobility type simultaneously.

<sup>D</sup> level of significance: +p < 0.10; \* p < 0.05

Regarding the results of the multivariate analysis (cf. Table 8), the explanatory power of the coefficients for certain characteristics varies between the countries. For example, “marital status” plays a significant role in France and Switzerland, but not in Spain and Germany. Although we see a tendency toward a higher response rate for highly educated people, the effect of education is quite heterogeneous between the countries.

However, two variables affect the propensity to participate again in all countries: age and mobility status of the respondent.

Respondents aged between 25 and 34 years have a higher-than-average dropout rate in every country. This could be explained by the relatively high propensity of younger people to relocate (e.g. Heidenreich & Herter-Eschweiler 2002, p. 675) in combination with the fact that people who changed their place of residence after the date of the first-wave interview most likely dropped out of the panel sample (cf. Section 2).

A higher probability to relocate between the waves can also be expected for people who have already experienced relocations in the past (cf. Section 5.4). Consistent with this, people who relocated over a long distance within the last three years before the day of the first-wave interview were more likely to drop out of the panel sample. In three of the four countries, the highest dropout propensity can be found for respondents who were identified as Recent Relocators and at the same time were practising circular mobility on the day of the interview in 2007. More in-depth analysis conducted with the German subsample revealed that these mobile persons very often refused to participate again immediately after the first-wave interview (Skora et al. 2012). One reason for the increased propensity for refusal can be seen in the average interview length of respondents who were mobile in multiple ways. The questionnaire contained specific questions for every type of mobility identified as being practiced by the respondent. Due to the relatively long interviews, some of those Multi-Mobiles might have refused to participate again. Only in France does being circularly mobile without recent relocation experiences lower the probability for participating again in this study.

In France and Switzerland, the residence of the respondent is a strong predictor. In France, people living in the agglomeration of Paris (Île-de-France) are more likely to drop out of the sample. In Switzerland, the probability to drop out of the sample is lower in the region of the Geneva Lake (French speaking) compared to the other regions of the country (bilingual or German speaking).

## 5.6 Weighting of the Panel Data

This section describes the building of a panel weight and presents a comparison of the weighted and unweighted distributions of the panel data differentiated by central socio-demographic characteristics.

### 5.6.1 Weighting of the First Wave (2007) at the National Level

For the sample of the first wave in 2007, a weighting factor was built to adjust biases that resulted either due to the sampling design or due to selective dropouts (unit non-response).<sup>12</sup> The final weighting variable is based upon three weighting variables, each adjusting one specific bias:

- a) The design weight correcting the oversampling of mobile respondents in the data set, composed of the two samples S1 and S2
- b) The design weight correcting differing selection probabilities of the respondent according to the number of household members aged 25 to 54
- c) The adjustment weight correcting biases resulting from unit non-response

<sup>12</sup> The building of the weights for the first wave is described in detail in: Schneider et al. 2011.

#### *The design weight correcting the oversampling of mobile respondents*

The research design implied an oversampling of job-mobile people (sample S2). The “true” portion of job-related spatially mobile people in the target population should match the portion of job-mobile people in the representative sample S1. Therefore, a weighting factor  $wa_i$  is necessary that adjusts the number of mobile cases of the total sample ( $S1 + S2$ ) to the number of mobile cases of the subsample S1. By contrast, the number of non-mobile cases has to remain unchanged:

$$wa_i = \frac{n(Mobile)_{s1}}{n(Mobile)_{s1+s2}} \quad \text{for mobile respondents}$$
$$wa_i = 1 \quad \text{for non-mobile respondents}$$

#### *The design weight correcting differing selection probabilities of household members*

According to the applied sampling technique, which was based on randomly generated landline phone numbers, every household with a landline number had the same chance of being selected. However, at the level of the household members, the chance of being selected differed according to the number of eligible people in the household. The more people aged 25 to 54 are living in a household the lower is the chance for each individual to be interviewed. Thus, the chance is reversed to the number of people aged 25 to 54 in the household. This number is referred to as the “reduced household size” ( $rhs$ ). If the weight did not need to be case-neutral it could simply be calculated as:

$$wb_i = rhs_i$$

However, using the reduced household size as a weighting factor would increase the sample size. Therefore, a correction factor was added that makes the weight  $wb_i$  case neutral:

$$wb_i = \frac{rhs_i * n}{\sum rhs_i}$$

The aim is to generate a weighting factor that allows for adjusting several biases simultaneously. Building a weighting variable  $wab_i$  that corrects the oversampling of job-mobile people ( $wa_i$ ) and the differing selection probabilities of household members ( $wb_i$ ) simultaneously could have been adequately realised by multiplying both weighting factors, but only if they are statistically independent. Therefore, to make  $wa_i$  and  $wb_i$  statistically independent,  $wb_i$  was calculated for mobiles and for non-mobiles separately. In each of the two subsamples, the respective number of cases and  $\Sigma (rhs_i)$  was considered. Thereupon it was possible to multiply  $wa_i$  and  $wb_i$  in order to generate a weighting factor  $wab_i$  that corrects both design biases simultaneously. This weighting factor  $wab_i$  served as the basis weight for the subsequent building of a weighting factor that additionally corrects selective unit non-response.

#### *The adjustment weight correcting the unit non-response bias*

After generating the design weight, an adjustment weight that corrects the bias caused by unit non-response was created. For this purpose, census data provided by the national statistical offices of the participating countries were used as the reference. The same set of variables (with minor deviations) was used in all countries to adapt the distribution of the data set to the distribution of the census data:

- 1) age, measured in 10-year brackets: 25-34 / 35-44 / 45-54
- 2) sex: female / male

- 3) education, based on the ISCED classification, collapsed to three categories: ISCED level 0-2 / level 3-4 / level 5-6
- 4) one aspect of family composition, with national variation, depending on available statistics:
  - a) presence of children under 18 in the household (yes/no)
  - b) presence of children in the household (yes/no)
  - c) having children under 18 (yes/no)
  - d) having children (yes/no)
  - e) living with a partner in the same household (yes/no)
  - f) marital status (married/not married)

- 5) one aspect of geographic distribution, with national variation<sup>13</sup>

The weight was calculated by applying the SAS macro Calmar. Calmar adjusts the margins of a defined set of variables simultaneously to predetermined distributions. This adjustment was realised by means of a calibration procedure, which is also called “raking” or “iterative proportional fitting.” The design weights  $wab_i$  were defined as the initial weights. In order to avoid an increased standard error, no adjustment weight was allowed to exceed 1.3.

These weighting factors ( $wabc_i$ ) correct design-based biases and adjust the distribution of the data set to the distribution found in the national census data. In the final data set of the first wave, these weighting factors were provided by the variable  $w\_nation$ . In the following, this variable is necessary to generate the panel weights.

### 5.6.2 Weighting of the Panel Data at the National Level

The idea of weighting all respondents of the panel study by their inverse probability of being part of the panel sample is constitutive for building a longitudinal weight.

To be a part of the panel sample, an individual has to comply with two requirements. First, the individual has to have already been a respondent of the first-wave sample. Secondly, this person has to have participated at the second wave again. Therefore, each respondent’s probability of being a part of the panel sample  $P(w1_i \cap w2_i)$  can be ascertained by multiplying the individual’s probability of being a part of the first wave  $P(w1_i)$  by the individual’s probability to participate again in the second wave, referred to as the “staying probability”  $P(w2_i | w1_i)$ :

$$P(w1_i \cap w2_i) = P(w1_i) * P(w2_i | w1_i)$$

The panel weight can be specified as:

$$wpi = \frac{1}{P(w1_i) * P(w2_i | w1_i)}$$

Thus, information about  $P(w1_i)$  and  $P(w1_i \cap w2_i)$  are needed.

The individual’s inverse probability of being a part of the first wave  $[1/P(w1_i)]$  is equal to the respective weighting factor of the first wave  $wabc_i$  (cf. Section 5.6.1). We can therefore calculate  $wpa_i$  by multiplying this weighting factor by the inverse staying probability:

$$wpa_i = wabc_i * \frac{1}{P(w2_i | w1_i)}$$

<sup>13</sup> In each country different geographic aspects were used for weighting, e.g. in Germany, East vs. West Germany.



Each respondent's staying probability  $P(w1_i \cap w2_i)$  was ascertained by running a binary logistic regression analysis, taking into account all respondents of the first wave. This analysis was run separately for each country's subsample to account for country-specific dropout patterns. The dependent variable was assigned the value 1 if the respondent participated in the second wave; otherwise it was assigned the value 0. As covariates, the following variables were included:

- 1) sex: female / male
- 2) age, measured in 10-year brackets: 25-34 / 35-44 / 45 - 54
- 3) education, based on the ISCED classification, collapsed to three categories: ISCED level 0-2 / level 3-4 / level 5-6
- 4) marital status: married / not married
- 5) familial situation: living alone / living with partner & without children / living without partner & with children / living with partner & with children
- 6) mobility status: Long-Distance Commuter / Overnighter or Long-Distance Relationship / Recent Relocator / Multi-Mobile / Experienced (non-mobile 1) / Rejector (non-mobile 2) / Unchallenged (non-mobile 3)<sup>14</sup>
- 7) one aspect of geographic distribution for the subsamples of Germany, France and Switzerland<sup>15</sup>

This weighting factor corrects biases due to selective dropouts between the waves as well as biases that emerged from the sampling of the first wave and therefore adjusts the distribution of the panel sample to the distribution of the weighted first-wave sample. But a weighting factor calculated in this manner also increases the reported sample size. If this weight would be applied, the reported sample size would be (approximately) equal to the sample size of the weighted first-wave sample. To avoid this over-reporting, a correction term was added that makes the weights case-neutral. The weight generated previously was multiplied by the ratio of unweighted and weighted sample size:

$$wpb_i = wabc_i * \frac{1}{P(w2_i | w1_i)} * \frac{n}{\sum(wpa_i)}$$

This weight corrects biases that can be ascribed to the sampling of the first wave and/or to selective dropouts between the waves. It adjusts the socio-demographic structure of the panel data to the structure of the weighted data of the first wave. Therefore, the weight allows for precise conclusions about the study's target population in a longitudinal perspective.

However, for some respondents of the Swiss subsample, high weighting factors were detected with the highest weights having a value of more than 10. These weights resulted from multiplying a high weight of the first wave by a high value of the inverse staying probability. To avoid this, the 95 percentile was chosen as the limit. Every weighting factor that exceeded the weighting factor of the 95 percentile (3.0761) was assigned to this value. This procedure led to a decrease of the reported sample size of the Swiss subsample (from 440 cases to 393 cases). Therefore, the weights of the Swiss subsample were made case-neutral again by multiplying all weights by the ratio of unweighted and weighted sample size (440/393). This correction implies an increase of all weights of the Swiss subsample. The highest weight of the Swiss data after this transformation is 3.4430.

<sup>14</sup> The different types of non-mobile people are described in section 8.2.

<sup>15</sup> In each country different geographic aspects were used for weighting (cf. Table 7 and Table 8).

**Table 9: Distribution of final weights**

	Germany	France	Spain	Switzerland
Mean	<b>1.000</b>	<b>1.000</b>	1.000	1.000
90% decile	2.097	2.081	2.355	2.502
Median	0.814	0.640	0.581	0.719
10% decile	0.304	0.283	0.138	0.232

Source: Job Mobilities and Family Lives in Europe. Table based on Skora et al. 2013, p. 21.

**Table 10: Sample descriptions before and after weightings**

	Germany			France			Spain			Switzerland		
	A	B	C	A	B	C	A	B	C	A	B	C
<b>Sex</b>												
Male	39.1	49.8	50.5	42.9	50.5	49.1	38.9	52.4	50.8	47.5	51.4	50.4
Female	60.9	50.2	49.5	57.1	49.5	50.9	61.1	47.6	49.2	52.5	48.6	49.6
<b>Age</b>												
25-34 years	21.2	28.6	27.3	15.4	31.6	31.5	22.9	36.9	36.9	22.7	34.9	33.0
35-44 years	38.9	39.0	38.8	40.6	34.7	34.9	41.2	33.6	34.8	33.9	35.1	36.5
45-54 years	39.9	32.4	33.9	44.1	33.7	33.6	35.9	29.5	28.3	43.4	29.9	30.5
<b>Education</b>												
ISCED 0-2	46.2	69.0	68.4	32.7	44.0	43.9	28.9	33.4	33.9	47.0	62.2	64.3
ISCED 3-4	24.8	14.5	14.8	17.7	19.7	20.2	30.2	44.6	44.1	9.8	6.2	7.9
ISCED 5-6	29.0	16.5	16.8	49.6	36.3	35.9	41.0	22.0	22.1	43.2	31.5	27.8
<b>Marital status</b>												
Not married	41.3	47.1	44.6	33.5	46.9	45.1	33.9	37.6	35.8	35.9	31.6	32.7
Married	58.7	52.9	55.4	66.5	53.1	54.9	66.1	62.4	64.2	64.1	68.4	67.3
<b>Familial situation</b>												
Living alone	24.0	24.8	24.1	15.0	16.4	15.5	23.6	26.1	22.8	21.4	17.3	20.2
Living with partner & without children	48.8	50.3	49.1	18.9	21.4	21.2	51.2	53.7	55.1	58.2	59.4	58.8
Living without partner & with children	6.0	5.1	4.7	7.5	7.8	5.7	2.6	2.0	2.7	3.2	2.7	2.5
Living with partner & with children	21.2	19.8	22.2	58.7	54.4	57.5	22.5	18.2	19.4	17.3	20.7	18.5
<b>Mobility</b>												
Non-mobile	79.2	82.5	83.6	81.5	82.7	85.7	65.5	87.4	88.2	67.5	86.9	88.2
Circular mobile	15.7	12.2	11.1	14.6	9.0	8.5	30.4	10.3	9.6	25.5	9.1	8.4
Relocation mobile	4.0	3.5	3.8	3.1	7.0	4.7	2.6	1.9	1.4	5.5	2.8	2.4
Relocation and circular mobile	1.2	1.8	1.5	0.8	1.2	1.1	1.5	0.5	0.7	1.6	0.5	1.0

Source: Job Mobilities and Family Lives in Europe. Table based on Skora et al. 2013, p. 21 (modified).

A = panel-sample unweighted;

B = panel-sample weighted;

C = first wave weighted. Values of all variables were collected in 2007 (first wave).

Table 9 shows the distribution of the final weights. Table 10 shows the distribution of the unweighted (A) and the weighted (B) panel sample. Additionally, the distribution of the weighted first-wave sample (C) is presented, which can be regarded as the target figure.

### 5.6.3 Weighting of the Panel Data at the European Level

The panel weights, calculated as described in the previous section, are suitable for analyses at the national level. They can be used if the analyses are either limited to one single country or differentiated by country (cross-country comparison). However, they may not be appropriate if statistics are calculated for two or more countries without differentiating between them since they do not take the relative sample sizes of the four countries into account. In addition, the relative national subsample sizes are expected to have an effect on the results: the larger the relative subsamples size of a given country, the greater the influence of this country's ratios and relationships on the common results.

Thus, as for the sample of the first wave (cf. Schneider et al. 2011; Huynen et al. 2010), two additional weighting variables were created, each one relying on a different rule for adjusting the sample sizes: the "proportional weight" and the "equal weight."

The *proportional weights* adjust the relative national subsample sizes according the relative sizes of the four target populations (the numbers of inhabitants aged 25 to 54 in the year 2007 in each country). These weights allow analyses that are representative of the total target population. They are appropriate for any descriptive and univariate analysis (means and ratios) with regard to the four countries in total or any other combination of at least two countries. To build the proportional weights, one national sample size (the German one) was left untouched as a reference. The proportional weights were calculated by multiplying the national panel weights of each national sample by 504 (the national sample size for Germany) and dividing it by the national sample sizes of the respective countries. To avoid turning the size of each national sample into  $n=504$ , the calculation was subsequently corrected by the size of the national target population in relation to the size of the target population in Germany, which equals 35,552,222<sup>16</sup>:

$$wp_{prop} = wp_{nation} * \frac{\text{German sample size}}{\text{national sample size}} * \frac{\text{size of national target population}}{\text{size of German target population}}$$

The *equal weights* adjust all national subsamples to one size ( $n=430$ ). This approach of sample size adjustment addresses the problem of unequal impacts of macro-level contexts on individual behaviour and thus on response behaviour if analytical analyses (correlations between two or more variables) are carried out based upon two or more national samples jointly. Macro-level conditions, such as policies, infrastructure or cultural beliefs exert an influence on individual behaviour. As long as analyses are limited to one nation, these contexts are mainly kept constant. But they cause variance in response behaviour if two or more nations are jointly analysed: the results will be unequally affected by the national contexts, giving more importance to large countries' contexts. Thus, applying equal weights can be appropriate when analyses of two or more countries are concerned with correlations and relations between two or more variables.

For the equal weights we decided to choose a sample size of  $n=430$  for each country sample. This decision was motivated by the aim to keep the total sample size of the equally weighted "four country panel" ( $n=1,720$ ) close to the total sample size of the

<sup>16</sup> This way of calculating the proportional weights for the panel sample is basically identical to the method that was applied for calculating the proportional weights for the first-wave data set. Cf.: Huynen et al. 2010.

unweighted panel data set (n=1,735).<sup>17</sup> The equal weights were calculated by multiplying the national panel weights by 430 and dividing it by the unweighted national sample size:

$$w_{\text{equal}} = w_{\text{national}} * \frac{430}{\text{national sample size}}$$

Table 11 presents an overview of the particular case numbers according to the weights, generated for the panel study.

**Table 11: Case numbers according to various weights**

	Germany	France	Spain	Switzerland	Total
(1) Sample sizes <sup>A</sup>	504	254	537	440	1,735
(2) Size of the target population (in 2007)	35,552,222	25,144,082	20,754,768	3,303,564	84,754,636
(3) Sample sizes after proportional weighting	504	357	294	47	1,201
(4) Ratio (3) to (1)	1.000	1.406	0.547	0.107	0.692
(5) Sample sizes after equal weighting	430	430	430	430	1,720
(6) Ratio (5) to (1)	0.853	1.693	0.801	0.977	0.991

Source: Job Mobilities and Family Lives in Europe. This table is taken from Skora et al. 2013, p. 23.

<sup>A</sup> without weighting or with (case-neutral) national weighting

## 6 Additional Surveys (Oversampling): Design, Sampling and Fieldwork

### 6.1 Target Population of the Additional Surveys

As described earlier, the survey had two goals: to collect representative data in order to describe the spread of job-related spatial mobility in its various forms and furthermore to provide a subsample of mobile people sufficiently large enough to analyse the situation of those people in a differentiated way. In the first wave of the survey conducted in 2007 this was achieved by generating two subsamples. The first subsample (S1) was a representative sample of the resident population aged 25 to 54 with access to a landline phone in the participating countries. The second subsample (S2) was an over-sampling of job-mobile people (cf. Section 5.1).

Identical to subsample S2 of the first wave, the target population of the second-wave additional surveys includes only mobile people aged 25 to 54 years in France and Germany living in private households with a landline phone.<sup>18</sup>

<sup>17</sup> The unweighted sample sizes of the four countries are quite heterogeneous. Especially French cases are sparse in comparison to the other national sample sizes. To reach the sample size of n=430, the French sample gets up-weighted by 69%, implying the risk of overestimating the reliability of results for this country. However, trying to avoid this up-weighting by choosing a much lower sample size for the equal weights would necessitate greatly down-weighting the samples of Germany, Spain and Switzerland, giving rise to the risk of underestimating the reliability of results for these three countries.

<sup>18</sup> A detailed description of the sampling procedure of the first wave is provided by Huynen et al. 2008 and Schneider et al. 2011.

## 6.2 Sampling of the Additional Surveys

The selection of respondents of the additional surveys (i.e. oversampling of job-mobile people) is based on a two-level random sampling technique. At the first level, the sample was based on randomly generated landline phone numbers. At the second level, the person to be interviewed within a contacted household was chosen among those eligible (aged 25 to 54 years old) using the last birthday method: The one whose birthday was most recent was to be interviewed.

Yet, the person contacted was only interviewed if he or she was mobile for job-related reasons. Mobile people were identified at the beginning of the interview by a set of questions about job-related mobility. These questions were used as a screening interview to decide whether or not the interview would be continued. The set of questions classified people as “job-mobile” if they fulfilled at least one of the following four sets of criteria:

- (1) Long-Distance Commuters (LDC): the respondent commutes daily, at least three times per week, with an overall commuting time of at least two hours.
- (2) Overnights: the respondent spent at least 60 overnights away from home during the last 12 months for occupational reasons. This could be e.g. weekend commuting, seasonal work for several weeks once a year, or frequent but irregular business trips with overnights in hotels.
- (3) Recent Relocators: the respondent changed his or her (main) place of residence at least once within the last three years before the day of the interview, mainly for occupational reasons. The relocation had to have occurred over a distance of at least 50 km.
- (4) Long-Distance Relationships (LDR): the respondent has a partner and both partners maintain separate households for job-related reasons. The two households need to be at least one hour away from each other.

If the person contacted turned out not to be mobile during the sampling phase, the interview ended after the screening. If he or she was classified as mobile, the interview continued. The sample of the additional surveys includes  $N = 249$  job-related mobile people in Germany and  $N = 250$  job-related mobile people in France (cf. Table 12).

## 6.3 Fieldwork, Sample Drop-Outs and Response Rates of the Additional Surveys

In Germany, the CATI interviews for the additional survey were conducted at the same time as the follow-up survey. The German polling institute SUZ (Sozialwissenschaftliches Umfragezentrum) collected the data between 20 May 2010 and 1 July 2010. In total, 71 interviewers were engaged in the fieldwork. The minimum duration of an interview was 25 minutes and the maximum duration was 79 minutes, with an average duration of 43 minutes. Up to eight attempts were made to reach a target respondent. A sample size of 250 interviews was intended for the additional survey. The German polling institute realised 251 interviews. To achieve this net sample size, the polling institute used a gross sample with 37,555 telephone numbers randomly generated according to the Gabler and Häder (1997) method.

In France, the CATI interviews carried out by DemoSCOPE were conducted between 25 September 2012 and 13 December 2012 with 15 interviewers. While the minimum duration was 24 and the maximum duration was 93 minutes, the average interview time was 66 minutes. The polling institute completed 252 interviews.

After various plausibility checks and the resulting data cleansing, two respondents were deleted from the data set in France and Germany respectively. The analysis showed that those respondents were not spatially mobile and thus not part of the target population.

The response rate presented in Table 12 is the “minimum response rate.” As outlined along with the description of the sampling of the first wave in Section 5.1, this response rate is calculated based on the (stringent) assumption that all immediate refusals and all non-answered phones belong to people within the target population. Thereby, it might underestimate the true response rate. The “minimum response rate” of the additional surveys is 11.6% in Germany and 10.8% in France. Both rates are about as high as those reported for the first-wave survey (Germany: 12.8%; France: 12.6%; cf. Section 5.2). Depending on the calculation method used, however, the response rate may turn out to be higher: The response rate in Germany equals 16.8% if the contact attempts without contact (phone never answered) are excluded from the number of persons potentially within the target population. The German polling institute used yet another method by defining sample neutral dropouts differently, which resulted in a response rate of 24.2% for the German sample.

**Table 12: Number of phone numbers and contacts in the additional surveys**

	Germany	France
Total no. of phone numbers generated	37,555	38,799
Non-existent phone numbers	5,011	- <sup>F</sup>
Existent phone numbers	32,544	- <sup>F</sup>
Contact with no person within the target population <sup>A</sup>	11,606	- <sup>F</sup>
Contact with a person <i>potentially</i> within the target population	20,938	16,700 <sup>G</sup>
No contact (phone never answered) <sup>B</sup>	6,419	- <sup>F</sup>
Answering machine only <sup>B</sup>	2,436	- <sup>F</sup>
Communication problems <sup>B</sup>	523	- <sup>F</sup>
Refusals / abandons (contact person) <sup>B</sup>	7,709	- <sup>F</sup>
Refusals / abandons (target person) <sup>B</sup>	1,416	- <sup>F</sup>
Completed interviews <sup>C</sup>	2,435	1,800 <sup>G</sup>
Screening interviews only	2,184	- <sup>F</sup>
Full interviews	251	252
Deleted cases not a part of the target population	2	2
Analysable interviews	249	250
Response rate <sup>D</sup>	11.6%	10.8% <sup>E</sup>

Source: Job Mobilities and Family Lives in Europe.

<sup>A</sup> This category contains phone numbers of private households in which no person aged 25 to 54 is living, as well as phone numbers of offices, fax numbers, etc.

<sup>B</sup> This category contains (mostly) phone numbers of which it is unclear whether or not they belong to a person within the target population so that it is unclear to what degree these numbers represent a potentially selective dropout.

<sup>C</sup> The number of “completed interviews” includes screening interviews that did not lead to full interviews (because the contacted person was identified as non-mobile or refused to continue with the full interview after the screening).

<sup>D</sup> The “minimum response rate” can be calculated by dividing the number of completed interviews by the number of contacts with a person potentially within the target population.

<sup>E</sup> The response rate of the additional survey in France was provided by the polling institute.

<sup>F</sup> Numbers were not provided by the polling institute.

<sup>G</sup> The polling institute reported approximately 1,800 completed interviews. If the formula to calculate the minimum response rate is considered, the number of persons potentially within the target population equals 16,700.



## 7 Follow-up and Additional Surveys: Data Cleansing

After the second-wave data collection, the data set was checked and corrected if necessary and possible. Each of the four national project teams followed the maxim of limiting any changes to a necessary minimum. As a result, major modifications to the data were avoided.

### *Excluded cases*

In the process of data cleansing, the answers of the respondents in the first wave and in the follow-up survey of the second wave were compared to each other. By focusing on time-invariant variables (i.e. year of birth, sex of the respondent) we tested whether the answers of the respondents in both waves were consistent. Cases with divergencies in one of the variables were further reviewed by considering and comparing additional variables (e.g. educational achievement, family status, number of children). If major discrepancies were found, the decision whether to exclude the case from the analysis had to be made. Ultimately, four German, fifteen Spanish and four Swiss respondents were excluded from the data set of the follow-up survey since they had major inconsistencies in several domains (cf. Section 5.4). This suggests that the person interviewed in the second wave was not the same person interviewed in the first wave. The data inspection also showed that two cases of the German and the French additional surveys could not be classified as highly spatially mobile. Those cases are therefore not part of the target population and were also deleted from the data set (cf. Section 6.3).

### *Missing values*

During data collection the following values were a priori coded as missing values: “9995” (question was not asked), “9006” / “9996” (doesn’t apply), “9997” (I can’t say, it varies too much / irregular, hard to predict), “9998” (don’t want to say) and “9999” (don’t know). In addition, several values of the variables “personal gross income” and “total net household income” were also defined as missing values: “9000000” (9.000.000 euros or more), “9000001” (prefer to give a category), “9000007” (no income, because respondent is currently on maternal or parental leave), “9999995” (question was not asked), “9999998” (don’t want to say) and “9999999” (don’t know).

In the course of data cleansing, in the following cases missing values were additionally assigned:

First, observations in the data set received the value “7776” (incorrect value), if the (numerical) value of the variables was implausible and a reconstruction of the correct value was not possible. In addition, some values of the variable “personal gross income” were correspondingly coded as “7777776” (incorrect value).

Secondly, after a check of the filter questions, some observations were coded by “7777” indicating a filtering error. For instance, the question whether women are currently postponing childbearing because of their career (b140603) should have been asked to women born after 1971. However, in the French additional survey, the question was mistakenly asked to women born 1971 and earlier. As a consequence, variable b140603 has the value “7777” for female respondents in the French additional survey born after 1971.

### *(Re-)constructed values*

By contrast to the examples mentioned above, in some cases variable values were not coded as missing but reconstructed during data cleansing.

First, in the French additional survey, respondents were not asked questions about their mobility behaviour if a job episode had not ended yet.<sup>19</sup> As a consequence, several job-biography variables related to the current job of the respondent did not contain information about their mobility behaviour (e.g. b0615; b061501; b061502; b061503; b061504 b0616; b061601; b061602; b061603; b061604; b0617; etc.). It was therefore unknown if a respondent commutes long distances, frequently spends nights away from home or relocated at least 50 km or more due to this job. However, the missing information could be reconstructed and completed. This was possible by using information about the mobility behaviour the respondents additionally gave in other sections of the interview (e.g. Section A - screening; Section E - job mobility).

Secondly, reconstructing the year of the *last* job-related relocation of a Recent Relocator<sup>20</sup> (vb\_mob3year) was also necessary in some cases. In order to complete the data set, the values of the French additional survey were (re)calculated. While this was done, inconsistencies in the data of the German additional survey and in the data of the follow-up surveys were detected and corrected. The inconsistencies occurred since relocations before 2007 had been mistakenly considered while generating variable vb\_mob3year in the German additional survey. However, only relocations since 2007 (i.e. within the last three years before the day of the interview) were relevant for defining Recent Relocators and thus for generating variable vb\_mob3year. The resulting inconsistent cases received the value “7776” (incorrect value). In addition, several relocation years previously not considered in the data of the follow-up surveys were also added to vb\_mob3year in order to complete the information of the variable. Overall, this resulted in 41 changes of vb\_mob3year (out of the 2,234 observations).

As a consequence, vb\_mob3mig, which is based on vb\_mob3year, also needed some changes. The variable indicates if a respondent crossed a national border when he or she relocated the *last* time for job-related reasons. Besides these newly generated variables vb\_mob3year and vb\_mob3mig, the data set also contains the original variables labelled vb\_mob3year\_old and vb\_mob3mig\_old. The original variables are still included, because several filter instructions refer to them. However, the filter instructions were not modified in order to limit the overall changes to a minimum.

#### *Correcting values of the first wave*

During data cleansing, some variables of the first wave were also edited. As a result, variable values of the panel data set differ from values of the first-wave scientific use file<sup>21</sup> in three cases:

First, the Spanish first-wave ISCO-88 variables (International Standard Classification of Occupations) contained several 3-digit SOC-2000 codes (Standard Occupational Classification) which have not been transformed into ISCO-88 codes yet (cf. Section 8.4).<sup>22</sup> Of the 244, 83 SOC-2000 codes included were translated into 4-digit ISCO-88 codes using a translation table provided by the British Office for National Statistics.<sup>23</sup> The remaining 3-digit SOC-2000 values, which could not be translated into ISCO-88 codes, were coded as system missing. As a consequence of those changes, the ISEI (Socio-Economic Index

<sup>19</sup> Those respondents are easily identified since they chose the answer category “I’m still working in this job” in one of the variables indicating the year a job ended (end of the first job: b0613; end of the second job: b0623; etc.).

<sup>20</sup> Recent Relocators changed the place of residence at least once within the last three years before the day of the interview, mainly for occupational reasons.

<sup>21</sup> Available at GESIS Leibniz Institute for the Social Sciences (<https://dbk.gesis.org/dbksearch>; study number: ZA 5065).

<sup>22</sup> In Spain, the interviewer translated the respondent’s description, unlike the surveys in the other participating countries, into a SOC-2000 code during the first-wave interview in 2007. SOC is an occupational classification designed by the United States *Department of Labor*, used in adjusted versions by the UK, Canada, Spain and other nations. The Spanish SOC-2000 codes were subsequently translated into ISCO-88 codes (cf. Schneider et al. 2011, p. 23).

<sup>23</sup> For more detailed information please visit: <https://www.ons.gov.uk/methodology/classificationsandstandards/standardoccupationalclassificationsoc/>

of Occupational Status) and SIOPS (Standard International Occupational Prestige Scale) variables, which are based on the ISCO-88 classification, were generated once more (cf. Section 8.5).

Secondly, after generating the variable indicating the French region a respondent is living in, inconsistencies in the data were corrected. In 32 cases of the first wave, the NUTS code (Nomenclature of Statistical Territorial Units) and the variable `region_F` (first wave), which groups France into eight zones, did not match. To harmonize the data, the corresponding NUTS codes of the first wave were replaced by those from the second wave. This was possible since variable `region_F` (first wave) and `b_region_F` (second wave) were identical and relocations had therefore not taken place.

Thirdly, variables `vb010250a` (other European country of birth), `vb010260b` (country of birth - other Non-European country) and `vb010650` (citizenship: other European) were harmonised. In the Spanish data, the value “9995” was replaced by an empty cell (as to `vb010250a` / `vb010250b`) and by the value “0” (as to `vb010650`), respectively, to adjust the Spanish to the German, French and Swiss subsample. Furthermore, in 14 Spanish cases variable `vb0102` (country of birth) contained the values “51” and “53”. Since the country of birth could not be reconstructed in these cases, the values were coded as system missing.

## 8 Special Indicators

Based on the questions in the questionnaire, a number of indicators were generated after the end of the fieldwork that can additionally be found in the data set. These and other variables that were not directly measured by the questionnaires are documented in the following sections.<sup>24</sup>

### 8.1 Technical Indicators

The data set has four technical indicators required for identifying cases (id) or subsamples (sample, survey, country). Three additional variables exist for weighting (`w_panel_nation`, `w_panel_proportion`, `w_panel_equal`) (cf. Section 5.6). The data set also includes the reduced household size (`rhs`) that was used for calculating weights (cf. Section 5.6.1). Its values equal the number of persons in the respondent’s household who are 25 to 54 years old and thereby belong to the target population (cf. Table 13).

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<sup>24</sup> The questionnaires are available at GESIS Leibniz Institute for the Social Sciences (<https://dbk.gesis.org/dbksearch; study number: ZA 5066>).

**Table 13: Technical indicators**

id	Anonymous individual identity number for each respondent (distributed by the polling institutes, <b>unique only within a given country</b> )		
sample	(1) First-wave subsample S1 (2007)	(2) First-wave subsample S2 (2007)	
survey	(1) Follow-up survey (panel)	(2) Additional surveys (France and Germany)	
country	(1) Germany (4) Switzerland	(2) France	(3) Spain
rhs	Reduced household size: number of persons, aged 25-54, in the household		
w_panel_nation	Weight for analyses at national level or differentiated by nation		
w_panel_proportion	Weight for descriptive analyses at European level		
w_panel_equal	Weight for causal analyses at European level		

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 18 (modified).

*Important note:* Some id numbers in the data set appear several times. The ids of the respondents are only unique within each country. This has to be considered when merging data files (cf. Section 9).

## 8.2 Job-Related Spatial Mobility

It was necessary to define who was and who was not job-mobile not only for comparing mobile people to non-mobile people, but for screening and filtering during the interview (cf. Section 4). Therefore, several mobility indicators were calculated based on answers respondents gave in the first section of the questionnaire.

**Table 14: Indicators for measuring job-related spatial mobility**

mob1	(wave 1)	The respondent is mobile as a Long-Distance Commuter (LDC):
b_mob1	(wave 2)	He/she commutes daily, at least three times per week, with an overall commuting time of at least two hours each day. (1) applies (0) does not apply
mob2	(wave 1)	The respondent is mobile as an Overnighter: He/she spent at least 60 overnights away from home during the last 12 months for occupational reasons. (1/0)
b_mob2	(wave 2)	
mob3	(wave 1)	The respondent is mobile as a Recent Relocator: He/she has changed his/her (main) place of residence at least once since 2004, mainly for occupational reasons. The relocation occurred over a distance of at least 50 km. (1/0)
b_mob3	(wave 2)	The respondent is mobile as a Recent Relocator: He/she has changed his/her (main) place of residence at least once within the last three years before the day of the second-wave interview, mainly for occupational reasons (additional survey in Germany: since 2007; additional survey in France: since 2009; follow-up survey in France and Switzerland: since 2008). The relocation occurred over a distance of at least 50 km. (1/0)
b_mob3b	(wave 2: Recent Relocators in wave 1)	The respondent was mobile as a Recent Relocator in the first wave, but is non-mobile in the follow-up survey.
	<i>Only in additional surveys in Germany and France and in follow-up surveys in France and Switzerland</i>	<i>Compute instruction for Germany and Spain:</i> if (mob3 = 1 and b_mob1 = 0 and b_mob2 = 0 and b_mob4 = 0) b_mob3b = 1. <i>Compute instruction for France and Switzerland:</i> if (mob3 = 1 and b_mob1 = 0 and b_mob2 = 0 and b_mob3 = 0 and b_mob4 = 0) b_mob3b = 1. Respondents in all four countries who were identified as a Recent Relocator in the first-wave interview (i.e. moved between 2004 and 2007) were asked several move-related questions in the follow-up survey.
vb_mob3year		Year of the <b>last</b> job-related move between... 2004 and 2007 (follow-up survey in Germany and Spain) 2004 and 2011 (follow-up survey in France and Switzerland) 2007 and 2010 (additional survey in Germany) 2009 and 2012 (additional survey in France) ...covering a distance of at least 50 km.
vb_mob3mig		The respondent is mobile as a Recent Relocator and has crossed a national border while relocating the <b>last</b> time for job-related reasons (Migrant). (1/0)
mob4	(wave 1)	The respondent is mobile in a Long Distance Relationship (LDR):
b_mob4	(wave 2)	He/she has a partner, both partners maintain separate households for job-related reasons at least one hour away from each other. (1/0)
mob	(wave 1)	The respondent is a Long-Distance Commuter, Overnighter, Recent Relocator or has a Long-Distance Relationship. (1/0)
b_mob	(wave 2)	The respondent is a Long-Distance Commuter, Overnighter, Recent Relocator (b_mob3=1) or has a Long-Distance Relationship. (1/0)
mob5	(wave 1)	The respondent's partner is a Long-Distance Commuter, Overnighter or Recent Relocator. (1/0)
b_mob5	(wave 2)	The respondent's partner is a Long-Distance Commuter, Overnighter or Recent Relocator. (1/0)

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 19 (modified).

Based on the definitions introduced in Section 2 and Section 6.2, the indicators mob1 and b\_mob1 (Long-Distance Commuters), mob2 and b\_mob2 (Over-nighters), mob3, b\_mob3 and b\_mob3b (Recent Relocators) as well as mob4 and b\_mob4 (Long-Distance Relationships) were generated for identifying specific forms of mobility. The indicator mob and b\_mob identify people who are mobile in any of the four forms (cf. Table 14). Furthermore, mob5 and b\_mob5 were generated to identify respondents with a partner who is mobile (in any of the distinguished mobility forms). The variable vb\_mob3year contains the year of the **last** job-related move. Variable vb\_mob3mig is used to distinguish Recent Relocators who have crossed a national border while relocating the **last** time for job-related reasons (“migrants”) from those who have not. In addition, the data set provides other mobility indicators, which are described in the following (cf. Table 15).

**Table 15: Combined indicators of job-related spatial mobility**

mobility01 (wave 1)	1 Long-Distance Commuter (LDC)
	2 Overnighter
	3 Recent Relocator
	4 in Long-Distance Relationship (LDR)
	5 Multi-Mobile (mobile in more than one way)
	6 Experienced (sub-form of non-mobile)
	7 Rejector (sub-form of non-mobile)
	8 Unchallenged (sub-form of non-mobile)
mobility01a (wave 1)	1 Long-Distance Commuter (LDC)
	2 Overnighter / in Long-Distance Relationship (LDR)
	3 Recent Relocator
	5 Multi-Mobile (mobile in more than one way)
	6 Experienced (sub-form of non-mobile)
	7 Rejector (sub-form of non-mobile)
	8 Unchallenged (sub-form of non-mobile)
mobility02 (wave 1)	1 Long-Distance Commuter (LDC)
	2 Shuttler (sub-form of Overnighter)
	3 Vari-Mobile (sub-form of Overnighter)
	4 in Long-Distance Relationship (LDR)
	5 Mover (sub-form of Recent Relocator)
	6 Migrant (sub-form of Recent Relocator)
	8 Multi-Mobile (mobile in more than one way)
	10 Experienced (sub-form of non-mobile)
	11 Rejector (sub-form of non-mobile)
	12 Unchallenged (sub-form of non-mobile)
b_mobility (wave 2)	1 Long-Distance Commuter (LDC)
	2 Overnighter
	3 Recent Relocator Follow-up survey (Switzerland, France) / Additional surveys (Germany, France)
	4 in Long-Distance Relationship (LDR)
	5 Multi-Mobile (mobile in more than one way)
	0 Not Mobile

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 19 (modified).

In the first wave, three variables were generated for distinguishing between the various forms of mobility defined in Table 14, Section 2 and Section 6.2: mobility01, mobility01a, and mobility02. Mobility01 differentiates between Long-Distance Commuters,

Overnighters, Recent Relocators, respondents living in a Long-Distance Relationship and Multi-Mobiles. Furthermore three types of non-mobile people are distinguished:<sup>25</sup> Experienced, Rejectors and Unchallenged.

The *Unchallenged* were never spatially mobile for job-related reasons and were never required to be. The *Experienced* are currently non-mobile, but were job-related spatially mobile in the past. The *Rejectors* have never been mobile but were faced with the requirement to become mobile at least once, which they (always) refused.

Because of the small number of people in Long-Distance Relationships, this category is combined with Overnighters in mobility01a.

The mobility forms are further distinguished in the variable mobility02. There, Overnighters are differentiated as *Shuttlers* and *Vari-Mobiles*. The former have a second home at the place of work and commute to their main place of residence mainly on the weekends. The latter spend overnights away from home for job-related reasons whereas duration, rhythm and destination vary (e.g. lorry drivers or persons often on business trips). In addition, variable mobility02 distinguishes between Movers and Migrants, which are both subgroups of Recent Relocators. Migrants have crossed a national border and Movers relocated within a country while moving at least 50 kilometres for job-related reasons.

In the second wave, a typology variable was also generated (b\_mobility). It differentiates between second-wave Long-Distance Commuters, Overnighters, respondents in Long Distance Relationships, Multi-Mobiles and respondents who are not mobile. This variable applies to the follow-up *and* the additional surveys. In addition, it indicates whether respondents of the follow-up survey in Switzerland and France as well as respondents of the additional surveys in Germany and France need to be considered as Recent Relocators.<sup>26</sup>

### 8.3 Education

The data set includes variables indicating the highest-attained educational level of the respondent (v0606 and b0606) and the respondent's partner (v0311 and b0311). These indicators were generated by recoding the various national school levels into comparable general categories based on the ISCED-97 classification (International Standard Classification of Education).

The ISCED-97 classification distinguishes between seven levels of education: from level 0 to level 6, with a further differentiation of ISCED level 5 into 5a and 5b. Level 0 and 1 represent pre- primary education. Level 2, 3 and 4 are forms of secondary education. Level 5 and 6 represent tertiary education. For each level, a description of contents, typical ages and typical durations is defined that allow the translation of national educational degrees into the ISCED classification (cf. Table 16)<sup>27</sup>.

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<sup>25</sup> For a more detailed description of the mobility types, cf. Limmer & Schneider 2008, p. 33ff. Please also refer to Huynen et al. 2010.

<sup>26</sup> In contrast to Germany and Spain, in Switzerland and France efforts were made to identify respondents who moved for job-related reasons over a distance of at least 50 km within the last three years before the second-wave interview (cf. section 2).

<sup>27</sup> For more detailed information about the ISCED-97 classification please visit: [http://www.unesco.org/education/information/nfsunesco/doc/isced\\_1997.htm](http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm)



**Table 16: ISCED classification**

ISCED level	Description of ISCED level
ISCED 0	Pre-primary education. It begins at the age of 2 or 3 and lasts for about 3 or 4 years. It provides a bridge between home and a school-based atmosphere.
ISCED 1	Primary education. It begins at ages between 5 and 7 and lasts about 5 years. It marks the beginning of systematic studies, which are characteristic of primary education, e.g. reading, writing and mathematics.
ISCED 2	First stage of secondary education. It begins at ages between 10 and 13 and lasts about 3 to 6 years. The programmes at this level are usually more subject-oriented, using subject-specialised teachers.
ISCED 3	Second stage of secondary education. It begins at the age of 15 or 16 and lasts about three years. The programmes at this level are also (like ISCED 2) more subject oriented, using subject-specialised teachers. A period of on-the-job training or experience may be necessary, sometimes formalised in apprenticeships.
ISCED 4	Programmes designed to prepare students for studies at ISCED level 5, e.g. pre-degree foundation courses or short vocational programmes. It begins at the age of 18 or 19 and lasts about three years.
ISCED 5a	Tertiary education. It begins at the age of 18 or 19, lasts about 3 or more years and leads to a university or postgraduate university degree or the equivalent. The programmes are devoted to advanced study and original research, and are not based on course-work only.
ISCED 5b	Tertiary education. It begins at the age of 18 or 19, lasts about 3 or 4 years and leads to an award not equivalent to a first university degree. It has a practical orientation, is occupation specific, and mainly designed to acquire the skills needed for a particular occupation.
ISCED 6	Tertiary education. It describes tertiary programmes that lead directly to the award of an advanced research qualification, usually talking about 3 years. This includes the US American “PhD,” the German “Promotion” and the French “doctorat.”

Source: Job Mobilities and Family Lives in Europe. This table is taken from Schneider et al. 2011, p. 21.

The ISCED-97 classification seemed too differentiated to be useful as a common category system: Applied to the data, several levels or categories would have remained empty or shown very low case numbers. Therefore the classification was modified slightly by collapsing two times two ISCED levels to one category each. The resulting categories of v0606 and b0606 (respondent’s educational qualification) as well as v0311 and b0311 (respondent’s partner’s educational qualification) are displayed in Table 17.

**Table 17: Classification of education in the data set**

Value of variable v0606, b0606, v0311, b0311	Value label	ISCED level
1	None	None ISCED 0
2	Primary / elementary school	ISCED 1
3	Lower-level secondary	ISCED 2
4	Upper-level secondary	ISCED 3 ISCED 4
5	Tertiary / university	ISCED 5a/b
6	PhD	ISCED 6
9000	Other (if respondents chose answer category “other level of education” during the interview)	—

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 22 (modified).

In addition, the national school levels are stored in several variables: education\_D and b\_education\_D (Germany), education\_F and b\_education\_F (France), education\_CH and b\_education\_CH (Switzerland) and b\_education\_E (Spain). Although the Spanish educational level was measured during the survey in 2007, a variable indicating the national educational levels of the respondents was not provided. The same approach was used regarding the partner's highest educational level. However, only a few variables indicating the partner's national levels are available in the data set: education\_partner\_F and b\_p\_education\_F (France), b\_p\_education\_D (Germany), b\_p\_education\_E (Spain), and b\_p\_education\_CH (Switzerland).

## 8.4 Occupation (ISCO)

Respondents working for pay were asked about their current occupation in both waves of the survey (cf. Table 18). If there was more than one, interviewees could describe up to four occupations. Respondents who were currently not working for pay were asked about their last occupation.

In the first wave of the survey, respondents with a partner working for pay were asked about the partner's current occupation (not asked in Switzerland). If there was more than one, up to four occupations could be described. In the second wave, respondents with a partner working for pay were asked to specify the partner's current occupation (not asked in Switzerland and in the French additional survey). In contrast to wave one, it was not possible to specify more than one job in the second wave. As a result, several string variables with open descriptions of occupations were generated in the interview language. However, these were removed from the scientific use file to protect anonymity.

The open descriptions were post-coded into the ISCO-88 classification (International Standard Classification of Occupations).<sup>28</sup> There is one exception: In the Spanish first-wave survey in 2007, there was no post-coding but a pre-coding according to the SOC-2000 (Standard Occupational Classification) classification in its three-digit version (cf. Section 7). Pre-coding means: The interviewer immediately translated the respondent's description into a code during the interview – no verbal description was stored in the data set. SOC is an occupational classification designed by the United States Department of Labor, used in adjusted versions by the UK, Canada, Spain and other nations. SOC also defines four levels, organised similarly to ISCO.<sup>29</sup> In the first wave, the Spanish SOC-2000 codes were subsequently translated into ISCO-88 codes using a translation table provided by the British Economic and Social Data Service (ESDS Government).<sup>30</sup>

The four-digit ISCO-88 codes are stored in several variables in the data set. Table 18 presents them as well as the variables storing SIOPS and ISEI prestige scores, which are explained in Section 8.5.

<sup>28</sup> ISCO-88 is a four-digit code that classifies occupations in a hierarchical system. The first digit distinguishes ten major groups (e.g. 2 = "professionals"). With the second digit included, 28 sub-major groups can be distinguished (e.g. 21 = "science and engineering professionals"). The first three digits identify 116 sub-groups (e.g. 211 = "physicists, chemists and related professionals"). The full four-digit code classifies 390 unit groups (e.g. 2114 = "geologists and geophysicists").

Meanwhile ISCO-08 is available. However, at the time of the post-coding of the first-wave data (autumn 2007) ISCO-08 was not yet available. In the panel data set ISCO-88 classification is still included to ensure comparability. For more information about the ISCO-88 classification please visit: <http://www.ilo.org/public/english/bureau/stat/isco/isco88/index.htm>

<sup>29</sup> For more detailed information about the SOC classification please visit: <http://www.bls.gov/soc/>

<sup>30</sup> During second-wave data cleansing, recoding of several 3-digit SOC-2000 codes of the first wave that have not been transformed into ISCO-88 codes yet was based on a table provided by the British Office for National Statistics (cf. section 7).

**Table 18: Variables describing occupation and job prestige**

	ISCO-88	SIOPS	ISEI
Respondent's current single occupation	(b_)isco88_a	(b_)siops_a	(b_)isei_a
Respondent's current 1st occupation	(b_)isco88_b	(b_)siops_b	(b_)isei_b
Respondent's current 2nd occupation	(b_)isco88_c	(b_)siops_c	(b_)isei_c
Respondent's current 3rd occupation	(b_)isco88_d	(b_)siops_d	(b_)isei_d
Respondent's current 4th occupation	(b_)isco88_e	(b_)siops_e	(b_)isei_e
Respondent's last occupation <sup>A</sup>	(b_)ex_isco88	(b_)ex_siops	(b_)ex_isei
Partner's single occupation <sup>B</sup> (wave 1)	p_isco88_a	p_siops_a	p_isei_a
Partner's 1st occupation <sup>B</sup> (wave 1)	p_isco88_b	p_siops_b	p_isei_b
Partner's 2nd occupation <sup>B</sup> (wave 1)	p_isco88_c	p_siops_c	p_isei_c
Partner's 3rd occupation <sup>B</sup> (wave 1)	p_isco88_d	p_siops_d	p_isei_d
Partner's 4th occupation <sup>B</sup> (wave 1)	p_isco88_e	p_siops_e	p_isei_e
Partner's occupation <sup>B</sup> (wave 2)	b_p_isco88	b_p_siops	b_p_isei

Source: Job Mobilities and Family Lives in Europe. Table based on Schneider et al. 2011, p. 24 (modified).

<sup>A</sup> Asked only to people who are currently not working for pay.

<sup>B</sup> In the first wave of the survey and the follow-up survey, the variables are available in the German, French and Spanish data. In the additional surveys (second wave), the variable is available in the German data.

## 8.5 Job Prestige (SIOPS and ISEI)

ISCO-88 codes can be translated into scores on various prestige scales.<sup>31</sup> A prestige scale measures prestige as a vertical dimension of social inequality. Job prestige is a social status, based on the reputation of the occupation and the professional position a person holds. A doctor or lawyer, for example, ranks higher on the prestige scale than a cleaner or factory worker. Other prestige scales include further aspects, such as the highest educational qualification necessary for the occupation. In the data set, ISCO-88 codes were translated into scores on two prestige scales: SIOPS and ISEI. The indicators can be found in Table 18.

*SIOPS* (Standard International Occupational Prestige Scale) was developed by Donald Treiman in the 1970s in a survey in 55 countries based on the ISCO-68 classification (cf. Treiman 1976 and Treiman 1977). Later on, SIOPS was adjusted to ISCO-88. The scores rank theoretically from 0 (low prestige) to 100 (high prestige). Given the fact that each score is an average evaluation of many respondents, scores close to 0 or 100 practically do not exist.

*ISEI* (International Socio-economic Index of Occupational Status) was published by Harry B. G. Ganzeboom et al. in 1992. The index "scales occupations by the average level of education and average earnings of job holders" (Ganzeboom 2010, p. 1). The calculation was based on 74,000 male respondents in full-time employment, aged 21 to 64. The data came from 31 surveys in 16 different countries. The idea behind this scale is that every occupation requires a specific degree of education and that it corresponds to a specific wage level.

<sup>31</sup> The tables used for this procedure are provided by the Dutch researcher Harry B. G. Ganzeboom on his personal website: <http://www.harryganzeboom.nl/isco08/index.htm>

## 8.6 Region and Residence (Nuts/LAU)

In the first and the second wave of the survey, respondents were asked about their place of residence.<sup>32</sup> Respondents who had moved within the country for occupational reasons during the previous three years were asked about their last place of residence as well in the first wave of the survey, in the French and Swiss follow-up survey and in the additional surveys.

During the interview, the answers were noted in detail by the interviewer. Subsequently, those answers were post-coded into a LAU2 code. In the scientific use file, however, the LAU2 codes were transformed in NUTS2 codes. The more detailed LAU2 codes were deleted from the scientific use file to prevent respondents from being identified.

LAU2 is the most detailed level of a set of regional classifications by Eurostat for the European Union, called NUTS (Nomenclature of Statistical Territorial Units) and LAU (Local Administrative Unit).<sup>33</sup> Together the systems have six levels: from NUTS0 to NUTS3, followed by LAU1 and LAU2. These levels are organised (mainly) hierarchically: Each level is a sub-division of the higher-ranking level, defining smaller regional parts within the larger regions of the higher-ranking level, starting with nation states (NUTS0). NUTS1 regions incorporate about three to seven million inhabitants. NUTS2 defines areas within the NUTS1 regions, each with about 800,000 to three million inhabitants. NUTS3 regions have about 150,000 to 800,000 inhabitants. LAU1 identifies larger local administrative units. LAU2 defines single municipalities or similarly small units (cf. Table 19).

**Table 19: NUTS and LAU levels**

Level	Average size of regions <sup>A</sup>	Example
NUTS0	Nation state	Germany, France, Spain, Switzerland
NUTS1	Approx. 3 million – 7 million inhabitants	D: Bundesländer; F: ZEAT; E: agrupación de comunidades autónomas; CH: –
NUTS2	Approx. 800,000 – 3 million inhabitants	D: Regierungsbezirke; F: régions; E: comunidades y ciudades autónomas; CH: Grossregionen / grandes régions
NUTS3	Approx. 150,000 – 800,000 inhabitants	D: Kreise / kreisfreie Städte; F: départements; E: provincias + islas + Ceuta, Melilla; CH: Kantone / cantons
LAU1	Municipalities associations	D: Verwaltungsgemeinschaften; F: cantons de rattachement; E: – ; CH: Bezirke / districts
LAU2	Municipalities	D: Gemeinden; F: communes; E: municipios; CH: Gemeinden / communes

Source: Job Mobilities and Family Lives in Europe. This table is taken from Schneider et al. 2011, p. 26.

<sup>A</sup> If NUTS regions follow administrative divisions they do not necessarily comply with rules regarding population sizes

The data set includes the variables v0201 / b0201 (place of living), vb090410 (last place of living before relocation, first-wave and second-wave additional surveys) and b090410 (last place of living before relocation, follow-up survey F und CH). The values of the variables consist altogether of 4 letters and digits: The first two letters (DE, FR, ES, CH) define the NUTS0 level, indicating the country in which a respondent lives. The third digit equals the NUTS1 region (e.g. the federal states in Germany) and the fourth digit the NUTS2 region (e.g. the “Regierungsbezirke” in Germany).

<sup>32</sup> People with several residences could mention up to four different residences.

<sup>33</sup> For more information on the NUTS and LAU codes, cf. Eurostat 2007 and Lück et al. 2007. Please also visit <http://ec.europa.eu/eurostat/web/nuts>.

In data analysis, the regional codes may be used in two ways. First, national and regional analyses are possible. Mobility behaviour or the effects of mobility may be different in the German- and in the French-speaking part of Switzerland, in the north and in the south of France, in eastern and in western Germany, etc. Secondly, the characteristics of the region in which a respondent lives (e.g. regional unemployment rate), can be included as macro level context variables in a multivariate analysis. National statistical offices and other institutions provide such regional statistics.

## 8.7 National Indicators

A few variables in the data set reflect questions or indices that were only asked or generated in a specific country. They are marked with a letter at the end of the variable name: “\_D” stands for Germany, “\_F” for France and “\_CH” for Switzerland and “\_E” for Spain. Besides nation-specific educational levels (cf. Section 8.3), these are indicators classifying or characterising regions within the country (cf. Section 8.6). These variables (cf. Table 20) can be used for analyses that are restricted to the national subsamples.

**Table 20: National indicators**

Variable name	Variable description
education_D	Educational qualification of respondents in Germany (wave 1)
b_education_D	Educational qualification of respondents in Germany (wave 2)
b_p_education_D	Educational qualification of respondents' partners in Germany (wave 2)
region_D	Regions (16 federal states) in Germany (wave 1)
b_region_D	Regions (16 federal states) in Germany (wave 2)
education_F	Educational qualification of respondents in France (wave 1)
education_partner_F	Educational qualification of respondents' partners in France (wave 1)
b_education_F	Educational qualification of respondents in France (wave 2)
b_p_education_F	Educational qualification of respondents' partners in France (wave 2)
region_F	Regions in France (grouped into 8 zones) (wave 1)
b_region_F	Regions in France (grouped into 8 zones) (wave 2)
education_CH	Educational qualification of respondents in Switzerland
b_education_CH	Educational qualification of respondents in Switzerland (wave 2)
b_p_education_CH	Educational qualification of respondents' partners in Switzerland (wave 2)
municipality_size_CH	Number of inhabitants of the municipality
municipality_type_CH	Classification of the municipality (centralisation typology)
region_CH	Regions in Switzerland (grouped into 7 zones) (wave 1)
b_region_CH	Regions in Switzerland (grouped into 7 zones) (wave 2)
b_education_E	Educational qualification of respondents in Spain (wave 2)
b_p_education_E	Educational qualification of respondents' partners in Spain (wave 2)

Source: Job Mobilities and Family Lives in Europe.

## 9 Working with the Data Set

When working with the data set, several aspects described in this document are important. They are therefore summarised in this section:

First, several variables are included in the data set to distinguish between different subgroups (cf. Section 8.1):

- “country”, indicating the survey country (1=Germany, 2=France, 3=Spain, 4=Switzerland)
- “survey”, indicating if a respondent is a part of the follow-up survey (= 1) or a part of the additional surveys (= 2)
- “sample”, indicating if a respondent is a part of subsample S1 or of subsample S2 of the first wave in 2007
- “id”, anonymous individual identity number for each respondent (distributed by the polling institutes, **unique only within a given country**)

Secondly, some id numbers in the data set are assigned more than one time (cf. Section 8.1). The ids of the respondents are only unique within a given country. This has to be considered if parts of the data are merged. In this case, each data set has to be sorted by country **and** id. This may be done in SPSS by using the following syntax:

```
SORT CASES BY country id.
```

Thirdly, to simplify the structure of the data set, the variable names refer to the survey to which they belong. Variables measured in the first wave usually have names starting with “v” (e.g. v\_var). The names of second-wave variables start with “b” (e.g. b\_var). Names of time-invariant variables resulting from questions asked during the first-wave interview and the additional surveys start with prefix “vb” (cf. Section 3).

## 10 Contact Information

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## Appendix

**Table 21: List of variables included only in the first-wave survey**

Variable(s)	Question in the questionnaire
First-wave survey 2007 only	
v090101c	Does [commuting time] vary strongly because you have to combine several jobs?
v0109	Did you own or rent the dwelling where you first moved when you left your parents' home?
v020503	Now how about your attachment to the region you live in, how intensely attached do you feel, once again on the same scale?
v030801 / ... / v030861	What is your partner's citizenship?
v0316b / .../ v0316e	What are your partner's current occupations?
v0322	I am speaking now about your past: How many partnerships have you had that lasted at least one year, excluding your current one?
v0323	And how many partnerships have you had where you lived together with your partner, excluding your current one?
v0422a1 / v0422a2	Think about a normal school-day. At what time is your child usually coming home from school?
v0424a	Is your child ever in the care of other relatives or friends?
v0424b	Are your children ever in the care of other relatives or friends?
v0424c	How often are other relatives or friends taking care of your child?
v0424d	How often are other relatives or friends taking care of your children?
v0705a	Do you consider yourself to have one main job and one second job, or are both jobs equally important?
v0705b	Do you consider yourself to have one main job and several second jobs, or are two or more jobs equally important?
v0706a	Which of your jobs is your main job?
v0706b	Which of your jobs should we talk about?
v090108	How many means of transportation do you use, in order to get to work, on a typical trip?
v090108a	Which one would that be?
v090108b	Please tell me which ones these would be. Please start with the one you are bridging the most kilometres
v090108c	... And the second means of transportation ...?
v090108d	... And the third means of transportation ...?
v090208a	When you and your partner are separated from one another over a longer period of time for job-related reasons, in which way do you communicate? Please, start with the means of communication you use most. You can name up to three.
v090208b	... And the second means of communication...?
v090208c	... And the third means of communication...?
v090209	How often do you communicate?
v090214a / ...b / ...	How are you usually accommodated when you spend nights away from home for your job?
v090216	How many means of transportation do you use, in order to get from your primary residence to your second accommodation, on a typical trip?

continued Table 21

Variable(s)	Question in the questionnaire
First-wave survey 2007 only	
v090217b	Please tell me which ones these would be. Please, start with the one with which you are bridging the most kilometres.
v090217c	... And the second means of transportation ...?
v090217d	... And the third means of transportation ...?
v090221a / ...b / ...	How are you usually accommodated when you spend nights away from home for your job?
v090222	Do you mostly go back to your home after your stay at one of your working places or do you travel sometimes from one working place directly to the next one?
v090223	How often does your partner visit you at your different working places or comes with you?
v090224a	How often does your child visit you at your different working places or come with you?
v090224b	How often do your children visit you at your different working places or come with you?
v090308	In which country does he/she (partner) live?
v090310a	As you and your partner are not living together for job-related reasons, in which way do you communicate? Please, start with the means of communication you use most. You can name three.
v090310b	... And the second means of communication...?
v090310c	... And the third means of communication...?
v090311	How often do you communicate?
v090312	Who visits whom most often? Do you visit mostly your partner or vice versa?
v090313	How many means of transportation do you use, in order to get to your partner's household, on a typical trip?
v090314a	Which one would that be?
v090314b	Please tell me which ones these would be. Please, start with the one with which you are bridging the most kilometres.
v090314c	... And the second means of transportation ...?
v090314d	... And the third means of transportation ...?
v090405a	Did your partner move directly with you or later on?
v090405b	Did your partner at that time move directly with you or later on?
v090405c	Did your family move directly with you or later on?
v090406a	How much time passed after you moved until your partner came?
v090406b	How much time passed after you moved until your family came?
v090407	Did you rent or own the place you lived in before your move?
v090408	Did you sell it when you moved?
v090409	Do you use it at the moment for your own purposes or do you rent it out?
v090412a / ...b / ...	From which to which country did you move?
vb1005	At the time of your first job-related move, was it foreseeable for you that you would be moving repeatedly?
v110112	There are no advantages. (advantages of job-related mobility)
v110212	There are no disadvantages. (disadvantages of job-related mobility)
	Does your company support you by providing you with any of the following things:

continued Table 21

Variable(s)	Question in the questionnaire
First-wave survey 2007 only	
v110401	providing means of communication for private use
v110402	refunding or co-financing travel costs between home and workplace
v110403	refunding or co-financing costs for extra rent or overnights away from home
v110404	refunding or co-financing costs for moving
v110405	help to find a job for your partner at the new place
v110406	help to find a kindergarten or school for your [child / children]
v110407	help with managing formal procedures
	In the following I will read out possibilities to support somebody who is mobile for the job. Please tell me whether they would improve your situation not at all, slightly or considerably.
v0120301	a financial or a bigger financial support from your employer
v0120302	a better infrastructure of transport
v0120303	more flexible working hours
v0120304	more possibility to work at home
v0120305	tax incentives regarding the costs of mobility
v0120306	more personal services provided by the employer
v0120307	more affordable or available services in your environment, like child care or longer opening hours in shops and in government offices
v0120308	more support from your partner
v0120309	more support from your family
v0120310	more understanding for your situation from your friends
v140401a	When taking care for family members, did you ever have to stop or interrupt your job for more than one year?
v140401b	When taking care for your children or for other family members, did you ever stop or interrupt your job for more than one year?
v140402	Did you ever reduce your work hours or work load for this reason?
v140501a	When taking care for family members, did your partner ever stop or interrupt his/her job for more than one year?
v140501b	When taking care for your children or for other family members, did your partner ever stop or interrupt [his/her] job for more than one year?
v140501c	Was that in the past or is it currently the case?
v140502	Did [he/she] ever reduce [his/her] work hours or work load for this reason?
v140502b	Was that in the past or is it currently the case?
vb1601a / ...b / ...	Which languages do you speak? Please start with the language you speak best including
v1609	And do you have motorway access within 20 minutes of your home?
v1610	From your (main) place of living, can you reach railway station with regional trains within 20 minutes?
v1611	What about a railway station with other trains (High speed and inter-city trains), do you have such a station within 20 minutes?
v1612	Can you reach an airport within 45 minutes?

Source: Job Mobilities and Family Lives in Europe.

**Table 22: Variables and groups of variables included only in the second-wave survey**

Variable(s)	Question in the questionnaire
Second-wave survey 2010-2012 only	
b0115	Please think back to your childhood. How often did you relocate as a child with your parents? Please count only relocations with a distance of more than 50km.
b0117	Have you ever lived in a foreign country due to job-related reasons or during your apprenticeship for at least 6 months?
b0218	How many people are living in your household, including yourself?
b0209/ .../ b0213	Social networks
b0214/ .../ b0217	Volunteerism
b0343	Has your partner the [survey country] citizenship?
b0325/ .../ b0342b	Partnership history (past relationships)
b0432 and b0433	Desire to have children in the future
b0506 and b0508	Constancy of relationship
b0611/ .../ b06107	Job history and job-related spatial mobility history
b0726/ .../ b0729 and b0731/ .../ b0734	Occupational situation
b110113/ .../ b110115	Consequences of job mobility
b140113/ .../ b140115	Individual characteristics
b1407	Please think about people in your immediate surrounding: do you think the requirements to be job mobile have changed, due to the world financial and economic crisis?
b150701/ .../ b1511	Health and well-being
b150510/ .../ b150513	Satisfaction with relationships to friends, neighbours, parents and colleagues
b1619a / b1619b/ .../ b161903	Personal gross income

Source: Job Mobilities and Family Lives in Europe.